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Local health departments in Iowa: Are they keeping up with the shift from communicable to chronic disease?

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LOCAL HEALTH DEPARTMENTS IN IOWA: ARE THEY KEEPING
UP WITH THE SHIFT FROM COMMUNICABLE TO
CHRONIC DISEASE?

An Abstract of a Dissertation
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Approved:

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May 2017

ABSTRACT

The leading causes of death in the United States are heart disease, cancer, and lower respiratory diseases; chronic disease that account for over half of all deaths. Local health departments (LHDs) are not required by statute to prevent these diseases. This study examines three questions: (1) Are local health departments engaging in primary chronic disease prevention, (2) Are there differences between urban and rural health departments in preventing chronic disease, and (3) What the barriers preventing them from preventing chronic disease.

LHDs are primarily funded by a combination of state and local funding, with much of the state funding coming from federal agencies. However, only 5.77% of the state health department budget directly addresses chronic disease prevention. More is spent on infectious disease, substance abuse treatment and prevention, and supplemental food programs.

The leading risk factors for heart disease, cancer, and lower respiratory diseases are tobacco use, obesity, and excessive alcohol use. Evidence-based research shows community-level action is essential in changing behavior, particularly policy development. Despite two influential reports from the Institute of Medicine, most health departments continue to focus on environmental health and infectious diseases.

This study relies on three sources of data: 2014 Local Governmental Public Health System Survey, the Health Improvement Plan for each county, and the most recent annual report for each county. The data shows less than half (43.2%) of LHDs engage in chronic disease prevention or directly perform primary prevention for nutrition

(43.4%), tobacco (41.51%), or physical activity (26.42%). Less than half of LHDs use evidence-based practice in prevention: tobacco (47.17%), physical activity (47.17%), heart disease (41.51%), nutrition (37.74%), or cancer (16.98%).

Metro counties (50,000+) were more likely to directly perform primary prevention for chronic disease, nutrition, physical activity, and tobacco than micropolitan and rural counties. There was little difference between micropolitan and rural counties. Barriers to performing primary prevention included staffing, funding, and limited education of the administrator.

Leadership at state and federal agencies need to allocate more dedicated funding to chronic disease, possibly shifting from other areas. LHDs may find they need to collaborate or consolidate to be effective.

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Dr. Christopher Edginton, Co-Chair

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CHAPTER 1

INTRODUCTION

Background

According to the Centers for Diseases Control and Prevention (CDC), people now live 30 years longer than they did in 1900, and 25 of those extended years can be attributed to public health (1999). This is a stunning success that public health practitioners should be proud. But as trends have shifted due to the early success of public health, it is also likely that adding more years to the average life expectancy will be much harder.

In 1900, the top three leading causes of death in the country were infectious diseases: pneumonia/ influenza (grouped together), tuberculosis, and diarrheal diseases (CDC, 2000). Pneumonia and influenza are combined since the turn of the twentieth century, it could be difficult to tell which disease led to death since they presented nearly identically to clinicians (CDC, 2016a). Diphtheria was also in the top ten causes of death in 1900, making four of the top 10 causes of death infectious diseases (CDC, 2000). Chronic diseases made up five of the top ten leading causes of death in 1900, with accidents (at number seven) completing the top ten (see Table 1).

In 2014, the most recent data year on record, the list of leading causes of death looks very different. Seven of the ten leading causes of death in the United States are caused by chronic diseases; or diseases that are not spread through viral or bacterial pathogens. Among these diseases, the top three account for over half of all deaths: diseases of the heart (23.4%); malignant neoplasms, commonly referred to as cancer

(22.5%), and chronic lower respiratory diseases, namely bronchitis and emphysema (5.6%; CDC, 2015a). The only infectious disease still listed in the top 10 was pneumonia/influenza (CDC, 2015a). Table 1 shows the difference between 1900 and 2014. According to the World Health Organization (WHO), the four chronic diseases impacting the most people worldwide are cardiovascular diseases (including heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease, or COPD, and asthma), and diabetes (2016).

Table 1

Top 10 causes of death in the United States, 1900 and 2014

	1900	2014
1	Pneumonia and Influenza	Heart disease
2	Tuberculosis	Cancer
3	Diarrheal Disease	Chronic lower respiratory diseases
4	Heart Disease	Unintentional injuries
5	Stroke	Stroke
6	Nephritis	Alzheimer's disease
7	Accidents	Diabetes
8	Cancer	Influenza and pneumonia
9	Senility	Nephritis, nephrotic syndrome and nephrosis
10	Diphtheria	Suicide

Note: Infectious diseases highlighted

What is a chronic disease? According to the World Health Organization (2016), these are diseases have three traits: they are not passed between people, are long in duration, and generally have a slow progression. Worldwide, the four chronic diseases impacting the most people are cardiovascular diseases (including heart attacks and

stroke), cancers, chronic respiratory diseases (such as COPD and asthma), and diabetes (WHO, 2016).

Chronic diseases becoming the bigger public health problem did not happen suddenly. As medical care improved and the transmission of communicable disease was better understood, the health care system had to deal less with infectious disease. Much of this success is the result of public health efforts at the state and local level.

History of Public Health in Iowa

In 1880, Iowa established a State Board of Health. This agency was tasked with collecting vital statistics, licensing medical professors, and with the advent of germ theory, overseeing a network of six laboratories. For the next seventy years, the State Board of Health would be the only public health agency serving the majority of Iowans (Bierring, 1961).

Early records that document the formation of local health departments in Iowa is difficult to find. In *History of the State Health Department, the First 80 Years (1880-1960)*, the author Walter Bierring does not reference local health departments at all. However, a report titled *Local Units of Health for the Nation* (Emerson, 1945) describes Iowa as only having one health department in 1942 that covered 6% of population. This coverage amount was the lowest percentage of the existing 48 states at the time save one, Vermont, which had no local health departments at the time.

According to records from the Iowa Department of Public Health (IDPH), Iowa counties would not be required to establish local board of health until 1967 with the

passage of Chapter 137 of the Iowa Code, better known as the New Local Health Act (2012). This required each county Board of Supervisors to establish a local board of health, with one member being a licensed physician. The law allowed cities with more than 25,000 people the option to establish a city board of health; counties and cities could form district boards of health (IDPH, 2012).

This state law coincided with unprecedented amounts of new federal funding for health that became available to states in the late 1960s during President Lyndon Johnson's "Great Society" movement. According to the Institute of Medicine (IOM), this federal initiative included Medicaid and Medicare programs in 1966 and directed funding for direct services of the elderly and poor; the Partnership Health Act of 1966, which established a block grant for state and local health departments; and the Comprehensive Health Planning Act of 1967, which allowed development of community health centers and a system of health planning agencies (1988).

By 1974, 88 Iowa counties had a functioning local board of health and 90 counties had either public health nursing or the Visiting Nurses Association operating in their county (Iowa Comprehensive Health Planning Advisory Council, 1976). According to public health historian Ron Eckhoff, by 1979 there were public health nursing units in all 99 Iowa counties (personal communication, October 3, 2016). In 1978, the Sioux City Health Department and the Woodbury County Health Department merged to form the Siouxland Health District (Ron Eckhoff, personal communication, October 3, 2016). Siouxland Health continues to be the only health district in Iowa. Since 1980 there have been no other significant changes to the structure of local health departments. At this time,

Iowa has 99 county health departments and two city health departments (Ottumwa and Council Bluffs) for a total of 101 free-standing health departments (IDPH, 2016b).

Current Public Health Practices in Iowa

Across the state, Iowa local health departments are very different from one another. Counties are allowed to meet statutory requirements any way they like. One county may build a robust and well-funded local health department (LHD), while another county of equal size could contract all required duties to another entity, such as a hospital or local non-profit organization.

In many areas, the emphasis was to fill in the gaps in direct medical care. According to the Iowa Department of Public Health 2016 directory, over a quarter of health departments still have a reference to nursing or home health in their name. Over half of LHDs have reference to either direct care service or the name of a direct care agency where the health department is housed, such as a hospital name (IDPH, 2016b).

According to the Iowa Administration Code Chapter 641 (2016), the function of local public health services is to:

Local public health services improve the health of the entire community; prevent illness; enhance the quality of life; provide services to safeguard the health and wellness of the community; reduce, prevent, and delay institutionalization of consumers; and preserve and protect families (2016).

However, health departments have traditionally worked to protect people from infectious disease and environmental threats. With chronic diseases now being the

leading cause of death, there is a wide gap between their purpose of a LHD and the work they undertake daily.

Current Role of a Local Health Department

While no two health departments in Iowa are alike, this does not mean that they do not share a number of common characteristics. Some LHD activities are done to fill health gaps in the community while other LHD functions are prescribed by the state.

Iowa Code has established a number of requirements for LHDs. A summary of legal authority given to local boards of health was compiled by the Iowa Attorney General's Office in 2011 for the Iowa Department of Public Health's Local Boards of Health Guidebook. These vary, but include: (1) Providing immunizations to children if they are not otherwise available, (2) Reporting certain infectious diseases to the state, (3) Working with the animal industry for diseases that impact both animals and humans (such as rabies), (4) Lead abatement, and (5) Inspecting swimming pools, tanning beds, and restaurants (IDPH, 2011).

The Code of Iowa passed by the legislature and the Iowa Administrative Code (also known as IAC - which contains detail about the enforcement and implementation of the laws) contain little that could be seen as a mandate to provide chronic disease prevention in their jurisdiction. The Attorney General's document on legal authority also stated that county's needed to coordinate on breast and cervical cancer screening but that section has since been removed from the administrative code (IDPH, 2011; IAC, 2016).

Among states, Iowa has the 12th highest percentage of residents living in rural areas with 35.98% according the 2010 census (United States Census Bureau, 2011). With the population scattered outside of cities, rural health departments have to fill in the gaps in medical care, especially services like home health which are difficult for a private sector business to sustain when there is a small patient population and long distances among them.

County Reporting

Since 1996, every county in Iowa has submitted a Community Health Needs Assessment (CHNA) and a Health Improvement Plan (HIP; IDPH, 2016c). The purpose of the CHNA is to bring together local community partners to assess the health status of the county. Typical partners can include hospitals, clinics, nonprofit agencies with health objectives, and schools. Once the information is compiled, the HIP lists measurable objectives to improve the health of the community. Every five years, both documents are updated so the health department and partners can look over their progress and create new goals to improve the health of the community.

The CHNA and HIP are meant to fulfill the functions of assessment and assurance, two of the three essential public health functions laid out the by groundbreaking publication *The Future of Public Health* (1988) by the Institute of Medicine. The essential three functions: (1) Assessment, (2) Policy Development, and (3) Assurance. These are included in IAC 641-77.3 under the roles and responsibilities of a

health department. However, there is no specific requirement to complete the CHNA/HIP process, submit the reports, or act on any of the recommendations contained therein.

Significance of the Study

Half of all Americans die from one or a combination of just three chronic diseases: heart disease, cancer, and lower respiratory diseases, such as COPD (CDC, 2015a). In 2010, “86% of all health care spending was for people with one or more chronic medical conditions,” and “71% of health care spending is for patients with multiple chronic conditions” (Gerteis et al., 2010). However, Iowa local health departments are under no mandate to prevent these chronic conditions. Most LHD resources are used for direct health care services, infectious disease prevention, and environmental health.

While it is essential that local public health deliver services that do not prevent the leading causes of death, the public health system needs to change so LHDs can better address today’s leading causes of mortality. By examining the specific role LHDs currently play in the primary prevention of chronic disease, government agencies can shift resources to be more effective in addressing the diseases that impact communities the most.

Purpose of the Study

The purpose of this study is to explain the amount of chronic disease prevention occurring at local health departments in Iowa, to determine why this is occurring, and to

recommend how the system might be changed so the population might be better served and live longer, healthier lives.

Major Research Questions

In examining how local health departments prioritize chronic disease prevention, the following questions will be asked:

1. Are county health departments in Iowa using their resources to prevent the three leading causes of death in the United States?
2. Is there a difference between urban and rural counties in preventing heart disease, cancer, and lower respiratory diseases and the risk factors that lead to them?
3. What barriers prevent health departments from doing more to combat the leading chronic diseases?

Limitations

Although three different data sources will be used, there are limitations to the analysis. One of the primary data sources, the 2014 Local Governmental Public Health System Survey, had only 55 counties reply to the survey. These counties were self-selected, since there was no mandate to complete the survey even though it was distributed by the state health department. This limits the data pool to 54.5% of all counties.

Delimitations

The top three leading causes of death will be studied as they combine to result in over 50% of deaths nationally. These diseases also result in over half of all deaths in Iowa. However, there are hundreds of different diseases and causes of death that could be examined. This study is only meant to shed light on those causes of death at the top. However, other diseases such as stroke, Alzheimer's, and diabetes are among the top 10 leading causes of death and a major cause of mortality. Primary prevention for stroke and diabetes overlaps with the prevention for heart disease (healthy diet and weight). The cause of Alzheimer's is not well understood making it impossible for LHDs to have primary prevention for the disease. Chronic diseases that cause disability but not death (such as arthritis) are not considered.

Only primary disease prevention will be studied. This consists of activities to keep people healthy before they get a disease and addressing risk factors that can lead to disease later in a person's life (Gordon, 1983). For example, proper diet and exercise can lead to a healthy body mass index, which is protective for heart disease. Secondary prevention, which includes screening, will not be examined as it requires medical intervention and is aimed at high-risk groups. Tertiary prevention, which includes treatment and recovery after getting a disease, will also not be included.

This study will not examine the public health system outside of Iowa or make comparisons between states. However, the sample size is large enough that results may be generalizable to other states with a large number of local health departments. For

example, Kansas is another heavily rural Midwest state which has 101 local health departments (National Association of City and County Health Officials, 2014).

The two city health departments (Council Bluffs and Ottumwa) and the two counties they are located in (Pottawattamie and Wapello, respectively) will not be used for study. Responsibility for the county population is split between two entities, which may result in the health departments being organized and operating differently. These differences will impact direct comparisons to all the other counties that are organized differently.

Basic Assumptions

Since the counties that completed the 2014 Local Governmental Public Health System Survey were self-selected, there is a concern about selection bias. It is possible that counties that elected to complete the survey have different characteristics than counties that did not complete the survey. Speculation on these potential differences include that it would be easier for smaller LHDs to fill it out and that LHDs more engaged in state efforts to for accreditation are more likely to return the survey.

However, with over half of LHDs submitting a completed survey, it is assumed that the results will be representative of all Iowa counties.

Definition of Important Terms

Chronic disease. Chronic disease is also known as a non-communicable disease or a disease that cannot be spread from person to person or from animals to humans.

According to the World Health Organization, these are diseases have three traits: they are not passed between people, are long in duration, and generally have a slow progression.

The four chronic diseases impacting the most people are cardiovascular diseases (including heart attacks and stroke), cancers, chronic respiratory diseases (such as COPD and asthma), and diabetes (WHO, 2016).

Infectious disease. Infectious, or communicable, diseases are caused by pathogens such as bacteria, viruses, parasites or fungi. Infectious diseases can be spread between people. Also, some infectious diseases can be spread between animals and humans, such as mosquitoes spreading malaria (WHO, 2016).

Local health department. Iowa has 99 county health departments, one in each county. There are two city health departments located in Council Bluffs and Ottumwa. This study will only examine county health departments, unless otherwise specified.

State health department. In Iowa, this is the agency known as the Iowa Department of Public Health. It is housed in Des Moines, Iowa, on the capital grounds along with the majority of its staff. IDPH has a few staff members working outside Des Moines providing regional support, but the agency does not have regional offices.

Risk factors. According to the WHO, “a risk factor is any attribute, characteristic or exposure of an individual that increases the likelihood of developing a disease or injury” (2016). These may include obesity, unsafe sex, high blood pressure, and tobacco use.

Prevention. This is usually divided into three categories: primary, secondary, and tertiary. Primary prevention is practiced before the appearance of a disease. Secondary

prevention is practiced once a disease can be identified, but before it can cause disability or suffering. Tertiary prevention happens after disability or suffering from a disease has occurred and aims to prevent further deterioration (Gordon, 1983).

Best Practices. Also known as evidence-based practice, it is using interventions that are backed by research to address health problems in the community.

Urban. This includes any county of greater than 50,000 or counties adjacent to a large county whose population is considered part of a Metropolitan Statistical Area (Office of Management and Budget, 2010).

Micropolitan. Any county with a population 10,000-49,999. (Office of Management and Budget, 2010).

Rural. Any county with less than 10,000. Also referred to as a 'noncore' county. (Office of Management and Budget, 2010).

CHAPTER 2

LITERATURE REVIEW

Previous Research

Previous studies have focused on the ability of LHDs to carry out the core functions of public health (assessment, policy development, and assurance) and the 10 Essential Public Health Services (EPHS). The 10 ESPH services were created in 1994 by the Public Health Functions Steering Committee coordinate with the three core functions as shown in Figure 1.

Three Core Functions and 10 Essential Public Health Services

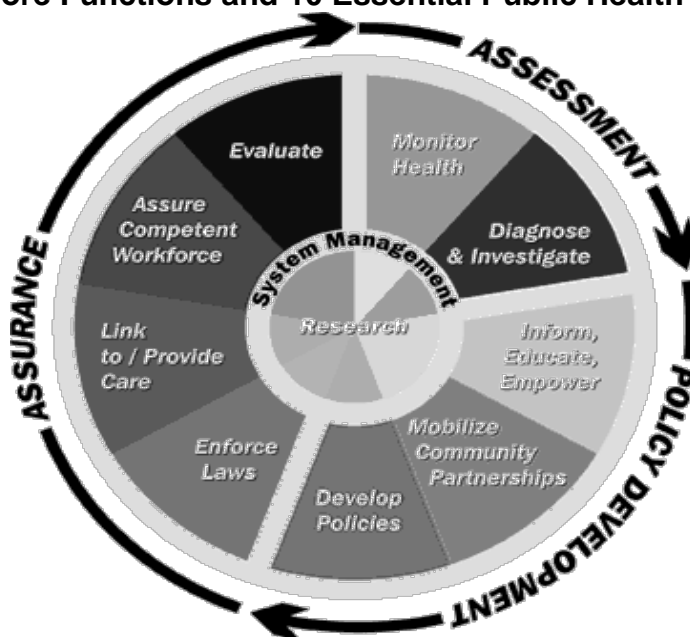


Figure 1: Three core function and 10 essential public health services. Reproduced from the Centers for Disease Control, Office for State, Tribal, Local, and Territorial Support. (CDC. 2014b)

Turnock et al. (1994) examined in the same measures in a random sample of LHDs across the country, though they did not ask about the “manage” and “evaluate” of the 10 EPHS. They found that overall compliance with the 10 EPHS was about 50 percent, with larger health departments faring better than smaller ones. When only comparing county health departments, small county LHDs averaged a compliance with core functions at 48.3%, while large county LHDs averaged 59%.

A meta-analysis of LHDs by Harris et al. (2016) compared the performance of urban and rural health departments in their delivery of the three core functions of public health and the 10 EPHS. They found that in virtually every study, urban LHDs performed better than rural LHDs. According to the study, “the current and historical lack of health care access in rural areas and limited LHD resources have encouraged rural LHDs to focus more on providing direct services at the cost of population-level public health activities (e.g., policy development).”

Harris et al. (2016) cited a 1997 article by the University of Iowa and IDPH that looked at performance of LHDs in the three core functions of public health and the 10 essential public health services (Rohrer, Dominguez, Weaver, Atchison, & Merchant, 1997). A 26-question survey was sent to all 99 LHDs with a 97% response rate. The researchers found that questions around the assurance function had the most positive responses, which included providing health services (75.5%), meeting regulatory standards (83.9%), and having a program to ensure environmental health (72.6%). Some areas in chronic disease that received below 50% positive response from LHDs were: assessed utilization of prevention and screening services (45.3%), surveyed for

behavioral risk factors (35.1%), and evaluated public health services effect on community health (38.3%; Rohrer et al., 1997).

These studies examined the broad application of these services by LHDs. No study in the literature specifically examined primary chronic disease prevention, specifically the risk factors for heart disease, cancer, and lower respiratory diseases.

Iowa's Public Health System

To understand how primary chronic disease prevention is delivered to each community, it is important to examine the organizations providing public health services to Iowa's citizens. There are three layers of government: federal, state, and local. These agencies partner, often contractually, with nongovernmental organizations (NGOs, or non-profits) to deliver public health services in Iowa.

Federal Public Health Funders

The Centers for Disease Control and Prevention (CDC) is the best known public health agency in the country. Started in 1946 as the Communicable Disease Center, it changed its name in 1970 to the "Center for Disease Control" (CDC, 1996). In 1981, after reorganization, it became "Centers" to reflect the agency's growth into additional facets of disease control. Finally, in 1992, the words "and Prevention" were added to their name, as their purpose became increasingly proactive (CDC, 1996). The name changes reflect the changing mission of the organization; what began as solely the research and

containment of communicable disease began to evolve into a wider spectrum of disease study, and finally, disease prevention.

One of the major roles of the CDC is to provide funding and technical assistance to state health departments across all areas of health, including chronic disease. In addition, the CDC compiles and shares health statistics, provides direct program support, and maintains a website containing evidence-based research for health interventions, known as the Community Guide (Community Guide, 2016).

The CDC allocated \$40.1 million to Iowa in fiscal year 2015 (October 1, 2014 – September 30, 2015) across 13 different program areas (CDC, 2015b). More than \$30 million went to IDPH, but over \$10 million was allocated to the University of Iowa, mostly for research and training (CDC, 2015b). Of the total CDC funding for Iowa, less than one-fifth (\$7.4 million) went to chronic disease prevention and health promotion. Another way to view this is that chronic disease spending is approximately one-third of the amount allocated for infectious disease, even though chronic disease kills far more people every year (CDC, 2015b). Table 2 offers a full breakdown.

Table 2

CDC Allocation for Iowa, Fiscal Year 2015

CATEGORY	OBLIGATED AMOUNT	PERCENTAGE
Infectious Disease		
Public Health Preparedness and Response	\$6,907,749	17.20%
Ebola Response and Preparedness	\$5,718,442	14.20%
Immunization and Respiratory Diseases	\$3,717,420	9.30%
HIV/AIDS, Viral Hepatitis, STI and TB Prevention	\$2,253,338	5.60%
Emerging and Zoonotic Infectious Diseases	\$1,823,838	4.50%
Vaccines for Children	\$965,467	2.40%
Public Health Scientific Services (PHSS)	\$446,162	1.10%
Total for Infectious Disease	\$21,832,416	54.30%
Chronic Disease		
Chronic Disease Prevention and Health Promotion	\$7,419,061	18.50%
Total for Chronic Disease	\$7,419,061	18.50%
Environmental and Occupational Health		
Occupational Safety and Health	\$4,783,444	11.90%
Injury Prevention and Control	\$1,342,000	3.30%
Environmental Health	\$891,901	2.20%
Total for Environmental and Occupational Health	\$7,017,345	17.40%
Other		
Birth Defects, Developmental Disabilities, Disability and Health	\$2,119,997	5.30%
CDC-Wide Activities and Program Support	\$1,775,497	4.40%
Total for Other	\$3,895,494	9.70%
Grand Total	\$40,164,316	100.00%

The CDC is the largest source of federal dollars directed toward chronic disease prevention in Iowa. This does not mean that tens of millions of dollars are not being allocated for a range of other health issues. However, no other federal agency is providing money earmarked to prevent chronic diseases.

According to the IDPH 2015 annual report, the U.S. Department of Agriculture allocated more than \$46 million for the Women, Infants, and Children program. This program provides supplemental nutrition for new mothers and their young children and the majority of the funds go to retailers who take WIC vouchers. While providing food to mothers and babies clearly has a benefit to the community at large, none of these funds address the issue of primary chronic disease prevention.

Substance Abuse and Mental Health Services Administration provided \$28.3 million to Iowa in FY2015 (SAMSHA, 2016). However, only funding for substance abuse goes to the state health department. The biggest piece (\$13 million) went to the substance abuse treatment and prevention block grant.

Table 3

SAMSHA allocation for Iowa, Fiscal Year 2015

CATEGORY	OBLIGATED AMOUNT	PERCENTAGE
Substance Abuse		
Substance Abuse Prevention and Treatment Block Grant	\$13,009,122	45.88%
Substance Abuse Prevention - Discretionary Funding	\$2,876,000	10.14%
Substance Abuse Treatment - Discretionary Funding	\$3,638,690	12.83%
Total for Substance Abuse	\$19,523,812	68.85%
Mental Health		
Community Mental Health Services Block Grant	\$3,686,277	13.00%
Projects for Assistance in Transition from Homelessness (PATH)	\$334,000	1.18%
Protection and Advocacy for Individuals with Mental Illness (PAIMI)	\$428,000	1.51%
Mental Health - Discretionary Funding	\$4,383,104	15.46%
Total for Mental Health	\$8,831,381	31.15%
Grand Total	\$28,355,193	100.00%

The Health Resources and Services Administration (HRSA) allocated \$25.8 million in the last fiscal year for programs at IDPH (2016). The primary goals are to fill health care shortages and areas of high need for medical services. The vast majority went to HIV/AIDS prevention and treatment (\$10.5 million) and maternal and child health (13 million). More money went to AIDS prevention and treatment in 2015, which killed 20 Iowans in 2015 (IDPH, 2016e). No money from HRSA went directly to prevent the leading causes of death (see Table 4).

Table 4

HRSA allocation for Iowa, Fiscal Year 2015

CATEGORY	OBLIGATED AMOUNT	PERCENTAGE
Health Workforce		
Grants to States - Rural Health Loan Repayment	\$140,000	0.54%
Grants to States - Oral Health Workforce	\$408,056	1.58%
State Primary Care Office	\$239,555	0.93%
Total for Health Workforce	\$787,611	3.06%
HIV/AIDS		
Ryan White - HIV Drug Assistance	\$3,211,484	12.46%
Ryan White - HIV Supplemental	\$6,913,713	26.83%
HIV Drug Shortfall Relief	\$395,606	1.54%
Total for HIV/AIDS	\$10,520,803	40.83%
Maternal and Child Health		
EMSC Partnership Grant	\$130,000	0.50%
Integrated Community Systems for CSHCN	\$285,942	1.11%
Maternal and Child Health Services Block Grant	\$6,495,727	25.21%
Maternal, Infant and Early Childhood Homevisiting Grant	\$5,686,076	22.07%
MCHB State Systems Development Initiative	\$95,374	0.37%
Universal Newborn Hearing Screening and Intervention	\$299,400	1.16%
Total for Maternal and Child Health	\$12,992,519	50.42%
Rural Health		
Medicare Rural Hospital Flexibility	\$610,810	2.37%
Small Rural Hospital Improvement Program	\$684,531	2.66%
State Offices of Rural Health	\$172,000	0.67%
Total for Rural Health	\$1,467,341	5.69%
Grand Total	\$25,768,274	100.00%

Iowa Department of Public Health

The Iowa Board of Health was created in 1880 with an appropriation of \$5,000.

According to a history of the state health department written by former health

commissioner Walter Bierring, “during the first five years the activities of the state health

department were limited to reporting outbreaks of contagious diseases throughout the state and the recording of births and deaths” (1961).

As medicine and medical training became more rigorous, the role of the department changed. Six laboratories for the examination of tuberculosis and rabies sprang up across the state. Three hundred stations were established for the distribution of “anti-typhoid vaccine” and diphtheria antitoxin in the early 1910s. Before World War I, a special grant of \$25,000 was used to educate, diagnose, and treat venereal diseases in soldiers. By 1924, licensing for medicine, dentists, embalmers, and others had fallen under the newly renamed State Department of Health (Bierring, 1961).

Most of the early decades were spent fighting infectious diseases, including polio, malaria, and tuberculosis. During the 1940s, three new divisions were added: hospitals, environmental engineering, and cancer control, widening the scope of the health department (Bierring, 1961). In 1953, the department established the Division of Gerontology, Heart, and Chronic Disease. Bierring said “by the continued extension of [life] expectancy, the incidence of heart and chronic, or long-term diseases, has greatly increased” (1961).

As local boards of health sprang up across Iowa in the 1950s-1960s, the state’s role at the local level began to diminish. However, much like the CDC serves in a grantor and technical assistance role with the state health department, IDPH serves the same role for local Iowa health departments. They collect and analyze data from all 99 counties, inclusive of the data they collect from other sources; this includes information submitted

directly from health care providers, such as the Inpatient/Outpatient data from all 126 hospitals (Iowa Hospital Association, 2016).

IDPH is organized into six units, with the director's office and five divisions, each with a division director. Underneath each of these are bureaus and offices. There are over 400 employees working on 80 programs (IDPH, 2016a). The majority of these employees are based in Des Moines, but a handful work from home offices, such as regional community health consultants.

According to the 2015 annual report, the IDPH budget estimate for FY2016 is \$252 million (IDPH, 2016a). The report breaks down the budget in 53 unique areas. Of these, only four areas directly relate to the prevention of the top three causes of death (heart disease, cancer, and lower respiratory diseases) and eight more have an indirect impact on these diseases. Only 13.8% of the IDPH budget is spent directly or indirectly on the diseases that kill over half of all Americans. Direct spending on these three chronic diseases is less than 6% of the total budget, or \$14.5 million. The budget is shown on Table 5.

Table 5

IDPH Budget, Fiscal Year 2016

CATEGORY	ALLOCATED AMOUNT	PERCENTAGE
Addresses Heart Disease, Cancer, and Lower Respiratory Diseases Directly		
Cancer	\$4,125,079	1.64%
Heart Disease and Stroke Prevention	\$1,562,883	0.62%
Nutrition and Physical Activity	\$2,426,762	0.96%
Tobacco Use	\$6,428,659	2.55%
	\$14,543,383	5.77%
Indirectly Addresses Heart Disease, Cancer, and Lower Respiratory Diseases		
Local Public Health Services	\$9,211,534	3.65%
Access to Quality Rural Health Services	\$1,954,050	0.78%
Adolescent Health	\$770,580	0.31%
Family Planning	\$1,209,349	0.48%
Health Care Safety Net	\$870,623	0.35%
Health Statistics	\$4,420,042	1.75%
Minority and Multicultural Health	\$95,119	0.04%
Planning Services	\$1,709,043	0.68%
Total for Indirect Prevention	\$20,240,340	8.03%
Heart Disease, Cancer, and Lower Respiratory Diseases Total	\$34,783,723	13.80%
All Other Services	\$217,256,132	86.20%
Total IDPH Budget	\$252,039,855	100.00%

Local Health Departments

Local health departments are the “boots on the ground” in Iowa. Every county is mandated to have a Board of Health, but they can accomplish the mandated activities by setting up a local health department or contracting with another agency (such as a

hospital or health clinic) to fulfill those requirements (IDPH, 2012). Most counties in Iowa have an independent health department with a health department director.

Local health departments in Iowa face a unique challenge. Iowa has 16.1% of their population older than 65, well above the national average 14.9%. According to the U.S. Census Bureau, Iowa is 86.7% white, non-Hispanic (2015). This does not mean that Iowa is without diversity, as there are pockets of immigrants from all over the world attracted to Iowa for unskilled jobs in food production, such as meat packing and egg production in rural counties. Two Iowa towns with large meat packing plants are representative of the challenges: Perry (8,108) and Waterloo (68,366; U.S. Census Bureau, 2015). The National Center for Education Statistics shows that in latest year on record, 2014-2015, Hispanic students were the majority at Perry Elementary, with 388 students who identify as Hispanic versus 334 who identify as white (2016). The Waterloo Community School District has interpreter services for 14 languages: Arabic, Bosnian, Burmese, Chinese, French, Karen, Karenni, Liberian English, Lingala, Marshallese, Portuguese, Spanish, Swahili, and Vietnamese (2016).

These groups bring infectious diseases not typically seen in smaller communities, such as tuberculosis and mumps (CDC, 2013). Additionally, immigrant groups may have their own problems with chronic diseases, such as high rates of Type 2 diabetes among Mexican-Americans (Afable-Munsuz, Mayeda, Perez-Stable, & Haan, 2013). The challenge of preventing and treating diseases while also addressing cultural barriers can put a strain on the limited resources of a local health department.

Nongovernmental Organizations

In the latest IDPH annual report, the department contracts with over 850 entities in all 99 counties (2016a). After removing the 101 county and city health departments, that still leaves more than 750 agencies with contracts from the state health department. While some of these contracts are held with for-profit organizations (such as marketing firms and private laboratories), the majority of these agreements are partnerships with nonprofit organizations.

This type of relationship with a non-profit can be found in the community partnerships contracted by the Division of Tobacco Use Prevention and Control at IDPH. These are local organizations that work with health care providers to promote tobacco cessation, engage youth to act as peer educators, and work to enact local tobacco- and smoke-free policies. IDPH contracts with 37 different organizations for this work, including health departments, clinics, behavioral health organizations, the American Lung Association, and even one agricultural extension district (IDPH, 2015). These organizations combine to cover 94 of Iowa's 99 counties.

Defining Major Causes of Death

The three leading causes of death; heart disease, cancer, and lower respiratory diseases; result in over half of all deaths in the United States (CDC, 2015a). To prevent premature death from chronic diseases, it is essential that the associated risk factors that lead to these diseases are addressed by public health. But what are these risk factors and how does the public health system make meaningful headway into reducing these diseases?

Heart Disease

Heart disease, or cardiovascular disease, is the leading killer in Iowa and the United States (CDC, 2015a). The two most common forms are coronary artery disease and myocardial infarction (heart attack), but the term can also cover 11 additional conditions: angina, aortic aneurysm, arrhythmias, atherosclerosis, atrial fibrillation, cardiomyopathy, congenital heart defects, heart failure, peripheral arterial disease, and rheumatic heart disease (CDC, 2016c).

The primary risk factors for heart disease are high blood pressure, high cholesterol, and smoking (Fryar, Chen, & Li, 2012). With the exception of smoking, these are secondary risk factors, which occur when someone already has a disease but does not yet show a disability as a result of having the disease. There is a correlation between socioeconomic status and cardiac risk factors. According to Fryar et al., “lower-income adults were more likely to have at least one of the three [cardiovascular disease] risk factors (60.8%) compared with those in the middle income (47.2%) and higher-income (37.9%) groups” (2012).

The risk factor that is most likely lead to high blood pressure and high cholesterol is obesity. Obesity is primarily caused by poor diet and physical inactivity. Obesity is simply the result of sustained higher energy intake compared with amount of energy expended (Popkin, Kim, Rusev, Du, & Zizza, 2006). Physical activity burns energy, so physical inactivity would result in consumed energy not be used, and consequently stored as fat. Eating calorie dense foods, not eating fruits and vegetables, and drinking alcohol all contribute to poor diet.

Alcohol consumption is linked to obesity, a risk factor for heart disease. However, moderate alcohol consumption has been found to be protective for coronary heart disease and stroke (Popkin et al., 2006). For this reason, alcohol's role in heart health is still hotly debated.

Smoking is specifically the use of lighted tobacco products, though the use of oral tobacco, known as "chew" or "snuff," has its own set of health problems associated with regular use. As of 2015, the age-adjusted smoking rate in the United States is 15.3%, a drastic drop from the 24.6% who were smoking in 1997 (CDC, 2016b). Smoking leads to a narrowing of the vascular lumen, creating a risk for acute thrombosis. Additionally, smoking contributes to the development of atherosclerotic plaque (HHS, 2010).

Cancer

Cancer can occur in almost every major organ and each type of cancer presents a different level of danger. Some cancers are potentially curable (e.g. Burkitt's and Hodgkin's lymphoma, skin melanomas) while others, such as pancreatic cancer, have a very low five-year survivability rate (Farmer et al., 2010). It is impossible to prevent all types of cancer, especially those that correlated with a person's genetics. The best known example of this is the high probability of developing breast cancer for women carrying the BRCA1 and BRCA2 gene mutation (Easton, Ford, & Bishop, 1995).

While genetics play a role, there are behavioral risk factors that increase a person's chances of developing a form of cancer in their lives. Smoking has been identified as one of the largest risk factors for cancer since the Surgeon General's 1964

report *Smoking and Health*. That report showed causation between tobacco use and cancers of the lung, larynx, mouth, esophagus, bladder, and kidney.

Since then the US Department of Health and Human Services (HHS) has identified smoking as the leading cause of cancer (2010). HHS lists 14 different cancers caused by smoking, adding to the list above cancers of the throat, liver, pancreas, stomach, cervix, colon, rectum, and acute myeloid leukemia (found in bone marrow and blood; 2010). Tobacco smoke has 69 chemicals that are known to cause cancer, and the act of inhaling them rapidly absorbs them into cells and produces cellular changes that can lead to disease (HHS, 2010).

Alcohol is another known risk factor for cancer and is responsible for 3.5% of all cancer deaths in America in 2009, or approximately 19,500 people. (Nelson et al., 2013). Over the past few decades, research has shown that alcohol increases the risk for cancers even though the causation mechanism is not well understood in all cases (Nelson et al., 2013). According to the World Cancer Research Fund, the evidence is that “alcoholic drinks are a cause of cancers of the mouth, pharynx, and larynx; the esophagus; colorectal cancer in men, and the breast in women; and probably of liver cancer and colorectal cancer in women” (2007).

Obesity, or a body mass index score of over 30, is another risk factor for cancer. Obesity is risk factor for cancers of the endometrium, kidney, gallbladder, esophageal, liver, breast, colorectal, pancreatic, ovarian, and thyroid as well as leukemia, myeloma, and non-Hodgkin lymphoma (Polednak, 2008). Based on the research of Dr. Anthony Polednak at the Connecticut Department of Public Health, it is estimated that 5.8% of all

cancers are caused by obesity, 4.4% in men and 7.7% in women, or a total of 84,201 cases each year in the United States (2008). While obesity has as far smaller impact than smoking on cancer rates, it may be a larger public health concern in the United States since obesity is on the rise while smoking rates have been dropping. In the 15 years from 1993 to 2008, smoking among adults declined 18.5% while the proportion of obesity increased 85% (Jia & Lubetkin, 2010).

While obesity is a major risk factor for many cancers, diet alone is not a risk factor for cancer. The National Cancer Institute has said studies have not shown definitively that any food definitively protects against or causes cancer in humans (2015). Studies so far have mostly examined foods that are grilled or charred as potentially carcinogenic.

Lower Respiratory Diseases

Lower respiratory diseases, better known in the health community as Chronic Obstructive Pulmonary Disease (COPD), includes chronic bronchitis and emphysema. It is the third leading cause of death in the United States but also has a significant impact on years of healthy life: more than 13% of adults 25-75 in the United States have either mild or moderate COPD (Celli et al., 2004).

The American Thoracic Society has stated that tobacco smoke is “by far” the leading risk factor for COPD (Celli et al., 2004). This group has stated that previous research showing 15-20% of smokers that have clinically significant COPD is an

underestimate. Lesser risk factors include occupational exposures, socio-economic status, and genetic predisposition.

Evidence-Based Practice

While heart disease, cancer, and lower respiratory diseases impact the human body in very different ways, risk factors for these diseases overlap significantly (see Figure 2). In order to address the most vital risk factors for the three leading causes of death, health departments need to focus on alcohol, smoking, and obesity. In order to maximize resources the use of evidence-based methods, or best practices, is essential.

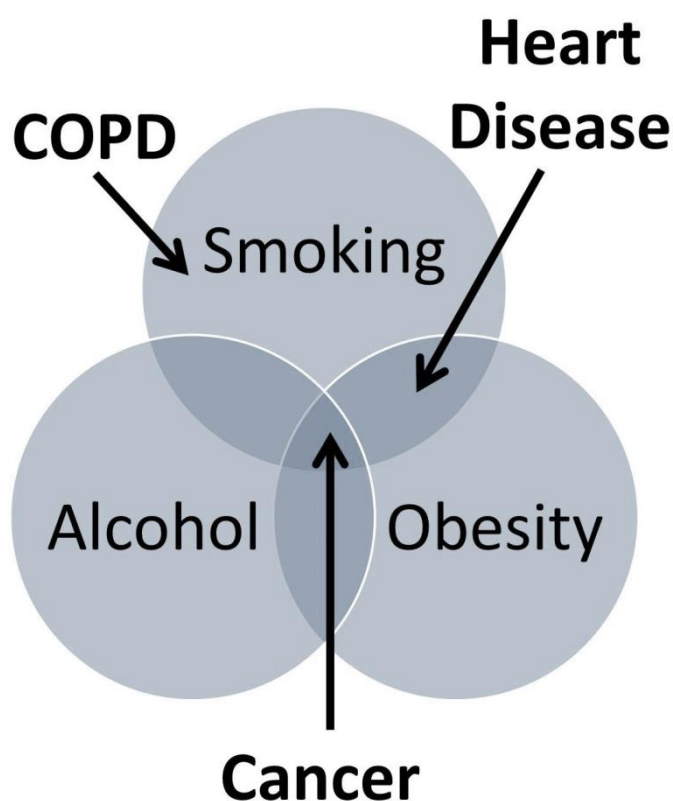


Figure 2: The leading causes of death and their primary risk factors

Best Practices in Tobacco Use

For each year between 2005-2009, it is estimated that smoking killed 480,000 adults in the United States. “It is responsible for 87% of lung cancer deaths, 61% of all pulmonary disease deaths, and 32% of all deaths from coronary heart disease were attributable to smoking and exposure to secondhand smoke” (HHS, 2014). Half of all smokers die prematurely (HHS, 2014).

The CDC has compiled over fifty years of evidence-based methodology into the manual *Best Practices for Comprehensive Tobacco Control Programs – 2014*. The four areas that LHDs can focus on are:

1. Preventing initiation among youth and young adults,
2. Promoting quitting among adults and youth,
3. Eliminating exposure to secondhand smoke, and
4. Identifying and eliminating tobacco-related disparities among population groups (CDC, 2014a)

With 9 in 10 youth starting smoking before age 18, delaying the age in which youth have their first cigarette can have a large impact on smoking rates (CDC, 2014a). The best way to do this is to raise the price of tobacco products (usually through taxes), smoke-free air laws, and funding comprehensive tobacco control programs (CDC, 2014a).

The CDC recommends funding Iowa tobacco control programs at a minimum of \$23.1 million annually, though the state currently funds tobacco control at \$6.4 million with a combination of state, CDC, and Medicaid funds. (IDPH, 2016a). In 2014, Iowa took in \$286 million in combined tobacco taxes and settlement funds and spent less than

2% of it for tobacco control programs (Campaign for Tobacco-Free Kids, 2015). This is money that could potential be earmarked for local tobacco control programs.

Best Practices in Obesity

In the United States, 36.3% of all adults are currently obese, though that number among adults 40-59 is over 40% (Ogden, Carroll, Fryar, & Flegal, 2015). Among youth age 2-19, this number was 17%, climbing as children get older (Ogden et al., 2015). Diseases linked to obesity include cardiovascular disease, hypertension (high blood pressure), dyslipidemia, type 2 diabetes, osteoporosis, sleep apnea, diverticular disease, anemia, and certain types of cancer (Thompson & Veneman, 2005). It is estimated that obese people die 9.44 years prematurely (Greenberg, 2013).

Obesity prevention is bifurcated into two areas: physical activity and diet. Federal guidelines for children recommend 60 minutes of aerobic activity every day, with vigorous activity on at least three days. Children should be getting muscle strengthening three days a week as well (Song, Carroll, & Fulton, 2013). Adults should get 150 minutes of moderate exercise per week or half that amount of vigorous activity. They should engage in muscle strengthening at least 2 days each week (Song et al., 2013). However, less than half get the recommended amount of physical activity (Song et al., 2013).

The CDC Guide to Strategies to Increase Physical Activity in the Community (2011) establishes lays out 10 techniques that LHDs could use to increase physical activity:

1. Community-wide campaigns,
2. Point-of-decision prompts to use stairs,

3. Individually adapted health behavior programs,
4. Enhanced school-based physical education,
5. Social support in community settings,
6. Creation of enhanced places for physical activity,
7. Street-scale urban design and land use policies,
8. Community-scale urban design and land-use policies,
9. Active transport to school, and
10. Transportation and travel policies.

Decision made related to diet and exercise are multifactorial and extremely difficult for health professionals to address. The CDC list of cross-cutting solutions includes: increasing breastfeeding, promoting salad bars in schools, increasing neighborhood walkability, increasing access to healthy foods, bike share programs, funding farmer's markets, worksite wellness programs, healthy vending machines, and many more (CDC, 2016d). Nutrition can be particularly difficult, as fewer than 25% of Americans eat the recommended 5 servings of fruits and vegetables every day (CDC, 2016d).

One example of multi-pronged program is the We Can!® (Ways to Enhance Children's Activity & Nutrition) launched in 2005 by the National Heart, Lung, and Blood Institute (NHLBI) to keep children 8-13 at a healthy weight. It focuses on eating right, getting active, and reducing screen time combined with a media campaign and community collaboration. It is a best practice that addresses physical activity and healthy eating. This type of intervention is easy for LHDs to implement since it is fully built and backed by evidence, though there are others like it (NHLBI, 2014).

Best Practices in Excessive Alcohol Consumption

Excessive drinking is the third leading cause of death in America and cost the health care system \$28.3 billion in 2010 (Sacks, Gonzales, Bouchery, Tomedi, & Brewer, 2015). The CDC defines excessive drinking as binge drinking (more than 5 drinks in one sitting, heavy drinking (more than 8 drinks in one week), and any alcohol consumption by pregnant women or those under age 21 (Community Guide, 2016).

This same guide recommends three evidence-based policy solutions for excessive drinking. The first is dram shop liability, which is holding retail alcohol establishments legally liable for harms inflicted by customers, such as death or injury from an alcohol-related crash. The second is limiting alcoholic beverage outlet density, usually controlled by limited the number of licenses in a certain area or through zoning. The third is limiting the days of sale for either on-premises (e.g. bars and restaurants) or off-premises purchases (e.g. liquor stores), usually Sundays (Community Guide, 2016).

Role of the Local Health Department

According the National Association of City and County Health Officials (NACCHO), there are more 2,800 LHDs in the country and while no two are the same that does not mean that some similarities do not emerge (2014). Shah, Luo, and Sotnikov conducted a study conducted by of local health departments, the top ten public health activities were adult immunization, childhood immunization, communicable/infectious disease surveillance, tuberculosis (TB) screening, TB treatment, environmental health surveillance, food service establishment regulation, food safety education, nutrition

education, and school and daycare regulation (2014). Of those, only nutrition education would be considered chronic disease primary prevention.

In 2004, Thomas Frieden, former director of the Centers for Disease Control and Prevention, stated that LHD's are "asleep at the switch" when it comes to intervening in chronic disease issues. Shah et al.'s assessment of the activities of LHDs seems to back up this assertion. However, what is the responsibility of a LHD and how has it evolved over time? Three seminal reports throughout the last seven decades will be examined for their role in shaping the perception of what the work of a LHD should be.

Local Units of Health for the Nation

When Haven Emerson released his report on *Local Units of Health for the Nation* (1945) for the Commonwealth Foundation, he suggested that health departments focus on six areas of service:

1. Vital Statistics, or the recording tabulation, interpretation, and publication of the essential facts of birth, deaths, and reportable diseases;
2. Control of communicable diseases, including tuberculosis, the venereal diseases, malaria, and hookworm disease;
3. Environmental sanitation, including supervision of milk and milk products, food processing and public eating places, and maintenance of sanitary conditions of employment;
4. Public health laboratory services;
5. Hygiene of maternity, infancy, and childhood, including supervision of the health of the school child; and
6. Health education of the general public so far as not covered by the functions of the departments of education.

These focus areas were extremely important at the time. Vital statistics were gathered and stored at the local level. Communicable diseases were just being better understood and public health measures to effectively address them were newly

developed. Large polio outbreaks, and the Salk vaccine to prevent it, would not occur for another decade. Penicillin became available in Iowa in 1944 and would change the treatment of disease forever (Bierring, 1961). And our understanding of food-borne diseases made a workforce capable of minimizing the risk necessary.

Chronic disease is not explicitly mentioned in the Emerson's services, which would later receive the moniker of the "Basic Six." These diseases were not as well understood as communicable diseases at the time and were more likely to be accepted by the public as an inevitable part of life. At the time of this report was issued, only 6% of Iowans were covered by local public health services, the second lowest in the nation (Emerson, 1945, p. 17). Emerson presented this paper, along with his ideas for dividing the state of Iowa into 27 health districts, at the 1944 Iowa Public Health Association Annual Conference (Childs & Eckhoff, 2010).

Institute of Medicine's *The Future of Public Health*

The 'Basic Six' services were remained imbedded in public health service delivery until the 1988 report from the Institute of Medicine (IOM) titled *The Future of Public Health*. This report served as a wake-up call to the system, bringing attention to the fact that while public health had prevented countless deaths by controlling communicable disease and improving maternal and child health, "we have slackened our public health vigilance nationally, and the health of the public is unnecessarily threatened as a result" (IOM, 1988, p. 2). The report goes on to state:

We have observed many symptoms of systemic problems, solutions to which will require a comprehensive strategy and a strong commitment on the part of the

entire society. We have observed disorganization, weak and unstable leadership, a lessening of professional and expert competence in leadership positions, hostility to public health concepts and approaches, outdated statutes, inadequate financial support for public health activities and public health education, gaps in data gathering and analysis that are essential to the public health functions of assessment and surveillance, and lack of effective links between the public and private sectors for the accomplishment of public health objectives (p. 31).

However, the report also acknowledges that health departments are in an impossible situation. It falls on LHDs to avert potential infectious disease disasters, respond to actual disasters, and provide direct health care services to at-risk populations (IOM, 1988). This responsibility leaves few resources to address chronic disease issues.

While difficult, the IOM does not absolve LHDs of their obligation to address chronic disease. This document established what is now the well-known in public health education as the three functions for a local health department: assessment, policy development, and assurance (IOM, 1988).

Among those three functions, assessment and policy development are the most important to address chronic disease, especially the latter. Assessment is the concept of “community diagnosis” or the activities related to gathering data on health status from local sources and using it to find the cause of problem and forecast trends (IOM, 1988, p. 44). Without data, an agency would not know what problems in their jurisdiction need attention. Policy development is the process of making goals and choosing the means to reach them. Government agencies, especially public health, are key to this process since they alone have the power to make binding and enforceable decisions (IOM, 1988, p. 44)

In practice policy development is not a well-planned process. “We found that policy development in public health at all levels of government is often ad hoc,

responding to the issue of the moment rather than benefiting from a careful assessment of existing knowledge, establishment of priorities based on data, and allocation of resources according to an objective assessment of the possibilities for greatest impact” (IOM, 1988, p.114).

When policy development happens, it often occurs in response to immediate crises. This leads to chronic diseases being often overlooked since they rise and fall slowly over time. According to the IOM (1988), health education programs are rarely complemented efforts to influence the physical environment (p. 113). The nature of chronic disease rarely makes it a crisis or raises the attention of the media and the community.

The IOM’s report brought attention to what is wrong with public health and laid out the key functions of assessment, policy development, and assurance. It did not call out public health for a lack of emphasis on chronic diseases or lay out any specific plan to change that problem.

Institute of Medicine’s *For the Public’s Health: Investing in a Healthier Future*

For the Public’s Health: Investing in a Healthier Future was published in 2012, 24 years after the IOM’s first report on public health, *The Future of Public Health*. This follow-up does not hold back in its criticism of public health and the health care system.

Much has been learned about the actual or distal (as opposed to the proximal) causes of death and disease, including social and economic conditions that impair health and make it hard to avoid health risks. Therefore, it is no longer sufficient to expect that reforms in the medical care delivery system (for example, changes in payment, access and quality) alone will improve the public’s health. Large proportions of the U.S. disease burden are preventable. The failure of the health

system (which includes medical care and governmental public health) to develop and deliver effective preventive strategies is taking a large and growing toll not only on health, but on the nation's economy. That is evident in the nation's poor health performance and high per capita health expenditures compared with those of its high-income peers (p.1-2).

The United States spends more than \$8,000 per capita annually on health care, twice the amount of all other industrialized nations, but has a lower life expectancy (Organization for Economic Cooperation and Development, 2016). This report states that changes to health care delivery alone, like the Affordable Care Act, will not solve this problem. The fault lies in inadequate and inefficient spending on population health (IOM, 2012).

This IOM report recommends a minimum package of public health services that consist of two pieces: foundational capabilities and basic program. Foundational capabilities are required to support effective and efficient programs. The six identified by the committee were:

1. Information systems and resources, including surveillance and epidemiology;
2. Health planning (including community health improvement planning);
3. Partnership development and community mobilization;
4. Policy development, analysis, and decision support;
5. Communication (including health literacy and cultural competence); and
6. Public health research, evaluation, and quality improvement (p. 61-62).

These capabilities are meant to be used across all the programs in the health department. One of the current weaknesses of public health identified in the report was that funding was "siloed," or not transferable between different programs in the same

health department. This meant that money and expertise are often trapped on a single health issue in an organization that is well-funded, and not able to be used elsewhere.

Once that department had these foundational capabilities in place, the next step was establishing basic programs that no health department should be without. The purpose of setting up basic programs with an established funding stream so they are considered ‘untouchable’ by budget cuts. The IOM report suggests these as a list of basic services by every health department:

1. Maternal and child health promotion;
2. Injury control;
3. Communicable disease control;
4. Chronic disease prevention (including tobacco control);
5. Environmental health; and
6. Mental health and substance abuse (2012, p. 62).

This is the first major report to offer a more prescriptive view of specific programs that public health should be working on. For example, it is the first report that states every health department should be working on tobacco control, even though tobacco has been identified as a major health hazard since the landmark report *Smoking and Health* issued by the U.S. Public Health Service in 1964. According to Mokdad, Marks, Stroup, and Gerberding (2004), it is estimated that tobacco use kills 435,000 Americans every year, or about 1,200 people daily, including smokers, people regularly exposed to secondhand smoke, and infant deaths directly caused by a mother who smoked during pregnancy.

Summary of Literature Review

Previous research on the services provided by local health departments did not focus on chronic disease but rather the utilization of the core functions and 10 essential public health services. However, smaller health departments tended to engage in these services less often than their urban counterparts. It was also found that small health departments tend to focus on direct services, often at the cost of policy development.

Local public health programs are mostly conducted by LHDs and nongovernmental organizations. Those agencies are funded by a combination of local and state dollars. The state receives their most of their funding from the legislature (state tax dollars) and from the federal government. Four federal agencies allocate more than \$140 million dollars annually to IDPH, but less than \$8 million is earmarked for prevention of heart disease, cancer, and lower respiratory diseases.

The causes of heart disease, cancer, and lower respiratory diseases were examined. There are 12 different types of heart disease, cancer can occur in about every organ in the body, and lower respiratory diseases usually caused by exposure to particulates. As diverse as these diseases are, three primary risk factors emerge: smoking, obesity, and excessive alcohol use.

The next section dealt with evidence-based interventions for those three risk factors and the community-level action needed for them to be effective. Smoking prevention needs community-based support for policy to limit sales and mobilize youth. Obesity prevention breaks down to nutrition and physical activity, which need to be systematically addressed at the local level through policy and education. Curbing

excessive alcohol use requires LHDs to address the density of liquor licenses as one of the CDC recommended best practices. In addition, according to Schmid, Pratt, and Howze, (1995) LHDs have a responsibility to make sure public health interests are represented at in community meetings like zoning boards, licensing boards, recreations associations, and other settings where decisions may have community health implications.

Finally, the changing role of the health department starting in the 1940s was examined. Emerson first standardized the role with the “Basic Six” services. In 1988, the Institute of Medicine came out with their first report on public health, institutionalizing the three core functions of assessment, policy development, and assurance that should occurring at all levels of public health. It was also critical of the public health system, calling it out for weak leadership, outdated statutes, gaps in data gathering, and inadequate financial support. The second IOM report in 2012 laid out six foundational capabilities and six basic services that each health department should have, which would be difficult for all but the largest health departments to adequately staff. Interestingly, filling gaps in clinical services was not on the list and decries the country’s reliance on the health care system.

CHAPTER 3

METHODOLOGY

Philosophy

Chapter 3 includes the approach the research takes, including a detailed description of the data sources. In addition to that, Chapter 3 presents the research design, discusses data collection, and how the data will be analyzed. Finally, it includes a section on ethical issues, limitations, and ability of the study to be applied to other populations.

This study uses mixed methods, relying on both quantitative and qualitative data. It is post-positivism research, viewing an objective world through the knowledge of individuals. According to Wildemuth (1993), post-positivist research is “based on the assumption the method be applied in a particular study should be based on the research question being addressed.” It is based in the assumption that reality is objective, transcends individual perspective, and advocates for “methodological pluralism” (Wildmuth, 1993).

The purpose of mixed methods in this study is to achieve a higher level of validity by comparing quantitative data from a survey with official government documents. These secondary data sources will provide qualitative data to confirm the findings in the quantitative survey. In addition, the secondary sources will help fill in gaps from the survey, since the survey was not designed for this study.

Approach

This study relies on three sources of data: 2014 Local Governmental Public Health System Survey, the Health Improvement Plan (HIP) for each county, and the most recent annual report for each county. All of these sources are self-reported data, with the last two being publicly available government documents.

The 2014 Local Governmental Public Health System Survey had 127 questions and was distributed by the Iowa Department of Public Health to all 101 local health departments in the state of Iowa in November 2014. However, only 55 agencies choose to fill out the electronic survey. Most of the questions were not relevant to the issues being examined in this study, with 17 questions addressing primary chronic disease prevention and structural issues. Many of these questions were split into multiple topics, so a total of 37 questions and sub-questions were analyzed. The responses to these 37 items will be included in the analysis.

The most recent HIP for each county describes their plan to address the leading health issues. The HIP is a document that is updated every five years, often with input from community partners. There is a standard format for the HIP, but counties can choose any goals, objectives, and strategies they want. The latest HIPs were due to the state in February 2016, so the information will be recent. The study will evaluate these to see if the LHD is planning to address smoking, obesity (physical activity and diet), and alcohol use in their goals.

The final set of documents will be the annual report for each county board of health. While there is no standard format for these reports, it is usual for these to contain

budget information, achievements from the previous year, and information about future plans of the agency. The inconsistency of information provided between counties will make it difficult to make comparisons between the reports of different counties. However, annual reports provide a third layer of self-reported data to complement the survey and the HIP.

Strategy and Research Design

This mixed methods study will rely primarily on quantitative data from the 2014 Local Governmental Public Health System Survey. Fifty-five counties responded, resulting in a 54.5% response rate. This survey was issued to LHDs based on a legislative mandate, however the data was not analyzed and no results were published. The full survey is in Appendix A.

Wapello and Pottawattamie counties will not be included in the study since the largest city in both of those counties has a separate city health department; City of Ottumwa Health Department in Wapello County and Council Bluffs City Health Department in Pottawattamie County. With two health departments in each county, it is likely that the staff, budget, and activities of the county health department are impacted, making them not comparable to the other counties in the study. Both counties responded to the survey, so only 53 of the 55 responses will be used. Those counties are highlighted in Figure 3.

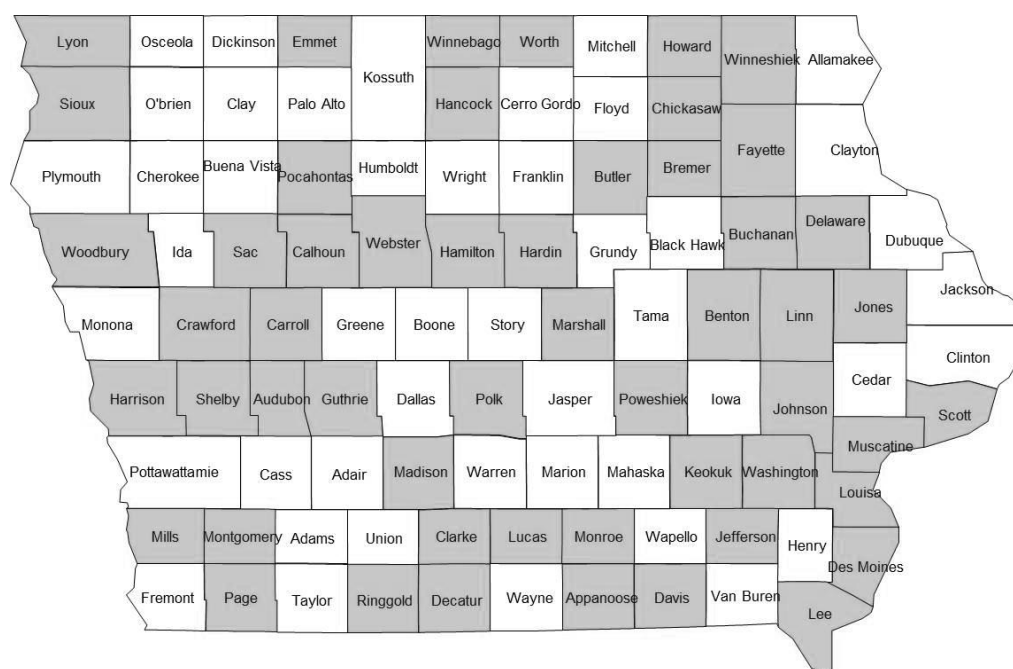


Figure 3: Iowa counties participating in the study (shaded)

The 37 questions and sub-questions ask a range of questions that focus on two areas: resources and activities. Examples of resource questions include those about budget, staffing, and education of key employees. Activity questions are about how resources are used, such as influenza vaccinations, blood pressure screenings, and injury prevention. This study will use the data from questions that ask about the three leading causes of death (heart disease, cancer, and COPD) and the questions about the three primary risk factors for those diseases (smoking, obesity, and alcohol use). It will also use data that addresses potential barriers to working on these issues, such as information in the areas of staffing, budget, and training.

The data from this survey will be compared to the information from the HIP for each county and each county's board of health annual report. The HIP has at least two

goals that the county would like to meet before 2020, though some counties have many more than two. The goals are based on the Community Health Needs Assessment, a companion document that describes the current health status of the community. Based on the assessment data, the HIP is written to address the areas of highest need for the community.

Of the 99 counties in Iowa, 95 submitted a HIP to the state health department during the last submittal window of December 1, 2015 – February 28, 2016. One county submitted a HIP completed in 2014. The remaining three counties did not submit a HIP, two of which are in the study group, resulting in 51 counties rather than 53 for analysis of HIPs.

The annual reports for the boards of health for the 53 counties studied will be assessed for direct action or intention to act on primary prevention for heart disease, cancer, and COPD. This report is created by the county without outside input and should provide more insight into the LHDs activities. From a research standpoint, this document is valuable since its unstructured nature means it may provide information or raise concerns not contemplated by the 2014 Local Governmental Public Health System Survey.

Of the 53 study counties, eight had a recent annual report posted online. Of the remaining 45 counties, 15 replied to an email request for the latest copy of their annual report, for a total of 23 annual reports.

Data Collection and Analysis

The data for the 2014 Local Governmental Public Health System Survey was collected in November-December 2014. For all the relevant questions, descriptive statistics will be calculated. Counties will be classified as metropolitan, micropolitan, and rural based on the definitions in Chapter 1. The United States Census Bureau published an updated file listing all metropolitan statistical areas (MSAs) and micropolitan counties in July, 2015. A table of the 53 counties and their classification is in Table 6.

Per the U.S. Census Bureau, “each metro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core” (2015). While residents in counties surrounding a major city may benefit economically, the local health department receives little in the way peripheral benefit from a nearby population center, other than media campaigns crossing county lines. Since there is no benefit to revenue or staffing, counties in the study that are fall in a MSA are not given special consideration.

Table 6

Participating counties by size classification

Rural - Under 10,000 <i>(n=12)</i>	Micropolitan - 10,000-49,999 <i>(n=36)</i>	Metropolitan - (50,000+) <i>(n=5)</i>
Audubon, Calhoun, Clarke, Davis, Decatur, Emmet, Howard, Lucas, Monroe, Pocahontas, Ringgold, Worth	Appanoose, Benton, Bremer, Buchanan, Butler, Carroll, Chickasaw, Crawford, Delaware, Des Moines, Fayette, Guthrie, Hamilton, Hancock, Hardin, Harrison, Jefferson, Jones, Keokuk, Lee, Louisa, Lyon, Madison, Marshall, Mills, Montgomery, Muscatine, Page, Poweshiek, Sac, Shelby, Sioux, Washington, Webster, Winnebago, Winneshiek	Johnson, Linn, Polk, Scott, Woodbury

Qualitative data from annual reports and HIPs are coded in a qualitative analysis program Dedoose ®. This will allow the coding to be analyzed accurately from a set of pre-established criteria with nine different codes. The parent codes are for each of the leading causes of death are (1) Heart disease, (2) Cancer, and (3) Lower respiratory diseases. The six primary risk factors were coded as (5) Tobacco; (6) Obesity, which also includes (7) Nutrition and (8) Physical activity; and (9) Alcohol). For each of those nine codes, there are three child codes for (1) Recognizing the problem, (2) Actively working on the problem, and (3) Planning to address in the future. The result is 27 different codes used to analyze the data.

Ethics, Reliability and Validity, Generalizability, and Limitations

Ethics

The 2014 Local Governmental Public Health System Survey only collected organizational-level data, so it was not subject to Institutional Review Board. The data was obtained from the Iowa Department of Public Health with no limitations to the manner in which it could be used. However, the front page of the survey states that information was confidential. County names will not be linked with specific answers since no attempt was made to get sign-off from any of the respondents to the survey to share their county-level data.

The survey data does not contain personal health information nor does it expressly request the opinion of the person filling out the survey. The name of the person filling out the survey was requested, but that information will not be used in the analysis of the data nor shared with other researchers.

Health Improvement Plans for 96 Iowa counties are posted on the IDPH website, 51 of the 53 counties in the study. Since the information is publicly posted on a government website, no permission is required to access them or use them in a study. To remain consistent, counties will not be linked directly to the information in their HIPs.

Annual reports from local boards of health are public documents. Some are posted online while others are available on demand. Again, counties will not be linked directly to the information contained in their annual reports.

Reliability and Validity

There are three self-reported data sources, two are qualitative and one is quantitative. The study design is to compare the quantitative findings from the survey with rich data from the HIP and annual report. The goal of the study is to find consistency with reporting across all three data sources.

By using three data sources, the study will use triangulation to assure validity. All three sources are self-reports at different times, ranging from July, 2014, to February, 2016. There is only one person evaluating the quantitative data, eliminating inter-rater reliability issues.

Generalizability

States structure their public health systems differently, with some very centralized at the state health department and others decentralized. Iowa has a decentralized structure, with 101 LHDs and more than 700 additional contractors (IDPH, 2016a). The unique nature of every state's public health structure and demographics makes it difficult to apply one state's finding to another state.

However, this study seeks to uncover trends that will be applicable to other state-level public health systems, especially those that are decentralized in nature. According to the NACCHO's National Profile of Local Health Departments (2014), Iowa is one of 27 states with a decentralized LHD structure, with control at the local level. This amounts to 1,943 health departments in decentralized states, or more than 69% of all LHDs nationwide. All but four states have some level of local control over governance of the

health department, with only Arkansas, Mississippi, South Carolina, and Vermont being state-run (NACCHO, 2014)

Additionally, the methodology of this study, which relies entirely on secondary data, may be easy to replicate for researchers looking for state-level information on local health departments.

Limitations

The 2014 Local Governmental Public Health System Survey did not have questions that addressed alcohol use directly, instead including survey questions on “substance abuse.” Since it cannot be inferred that counties are conducting prevention for alcohol use based on an affirmative response to substance abuse, those questions will not be used in this study. However, primary prevention for alcohol can still be studied using the qualitative sources in the study.

The third research question is focuses on finding barriers to primary chronic disease prevention. This information is not typically supplied in an annual report or HIP. For this question, only the quantitative data will be used, though answers will be validated through the literature review.

CHAPTER 4

RESULTS AND DISCUSSION

Results of the Study

There are three questions this study is attempting to answer. For each question, descriptive statistics, statistical analyses, and qualitative sources will be examined. The survey data covers 53 counties, though three counties did not provide fiscal data. The full list of questions from the survey and a full list of those questions are available in Appendix B. Health Improvement Projects (HIPs) were provided to IDPH by 51 of the 53 study counties. Annual reports from 23 counties were made available for analysis.

Local Health Departments Preventing Chronic Disease

Question 1: Are county health departments in Iowa using their resources to prevent the three leading causes of death in the United States?

Descriptive statistics. Questions 86 and 87 of the survey ask if counties conduct chronic disease surveillance and primary prevention, shown in Table 7. Less than half of counties engaged in surveillance or primary prevention for all questions on the survey related to the leading causes of death or their primary risk factors.

Table 7

Questions 86 and 87: Percent of counties performing chronic disease surveillance and primary prevention (n=53)

Surveillance for Chronic Disease	28.30%
Primary Disease Prevention – Physical Activity	26.42%
Primary Disease Prevention - Tobacco	41.51%
Primary Disease Prevention - Chronic Disease	43.40%
Primary Disease Prevention - Nutrition	43.40%

Question 110 of the survey asked if the LHD was using evidence-based practice in a number of areas of health, shown in Table 8. Again, less than half of all counties surveyed stated they were using evidence-based practice in for either the three primary risk factors for chronic disease or the diseases themselves.

Table 8

Question 110: Percentage of counties using evidence-based practice in different areas of chronic disease prevention (n=53)

Cancer	16.98%
Nutrition	37.74%
Cardiovascular disease	41.51%
Physical Activity	47.17%
Tobacco	47.17%

Question 112 of the survey asked if counties are a member of a coalition in a number of areas. This area shows improvement over the other questions that look for a direct connection to the three leading causes of death. Table 9 shows the results for cancer, cardiovascular disease, and several of the primary risk factors.

Table 9

Question 112: Percentage of counties participating in a coalition for select chronic disease or an associated risk factor (n=53)

Cancer	28.31%
Cardiovascular disease	33.96%
Nutrition	58.49%
Physical Activity	64.15%
Tobacco	69.81%

When asked broadly if their agency engaged in chronic disease prevention or wellness programs (Question 109), 77.78% of LHDs responded “yes” while 22.22% responded “no.”

Health Improvement Plans and Annual Reports. Twenty-three counties had annual reports available for analysis, which was 43.4% of the study participants. Every report was evaluated for two factors: (1) Did it list the area as a problem in their area and (2) Did it show an active primary prevention program or activity. Table 10 shows the results.

Table 10

County health departments mention of select chronic diseases and risk factors for current activity or listed as a current problem (n=23)

Cancer	
Listed as problem	4.35%
Current Action	26.09%
Cardiovascular disease	
Listed as problem	8.70%
Current Action	13.04%
Lower Respiratory Diseases	
Listed as problem	0.00%
Current Action	0.00%
Excessive Alcohol Use	
Listed as problem	0.00%
Current Action	8.70%
Obesity	
Listed as problem	30.34%
Current Action	17.39%
Nutrition	
Listed as problem	8.70%
Current Action	34.78%
Physical Activity	
Listed as problem	8.70%
Current Action	30.43%
Tobacco	
Listed as problem	8.70%
Current Action	43.48%

Table 10 shows that tobacco was the most acted upon area, with 43.38% of reporting counties including specific actions to curb tobacco use in their annual reports. This is despite tobacco use only being listed as a problem in 8.70% of counties. Obesity was more often listed as a problem (30.34%) and activities around physical activity (30.43%) and nutrition (34.78%) were listed by about one-third of reporting counties.

Health improvement Plans were analyzed differently. Counties use the document to show how an intervention will be applied to an existing problem, but the intervention may be continuing, new, or planned to be started in the five year period of the HIP. For this reason, a program mentioned in a HIP is coded as an intention to intervene. Table 11 shows the statewide results.

Table 11

Percentage of counties reporting intention to intervene in select chronic diseases and associated risk factors in the HIP (n=51)

Cancer	7.84%
Heart disease	11.76%
Lower Respiratory Diseases	0.00%
Excessive Alcohol Use	23.53%
Obesity	43.14%
Nutrition	47.06%
Physical Activity	56.86%
Tobacco	33.33%

Counties are more likely to have a plan to intervene in the risk factors impacting a disease than one of the leading causes of death directly. No counties addressed lower respiratory diseases directly in their HIP. Cancer was directly mentioned in 7.84% of HIPs and heart disease in 11.76%.

The data shows that obesity (43.14%) and the two risk factors contributing to it, nutrition (47.06%) and physical activity (56.86%) are the primary concern of health departments. Tobacco was behind those with 33.33% of health departments including it in their plan. Excessive alcohol use, mostly among youth, was in 23.53%.

Urban and Rural Differences

Question 2: Is there a difference between urban and rural counties in preventing heart disease, cancer, and lower respiratory diseases and the risk factors that lead to them?

Descriptive statistics. Question 7 asked for the total expenditures in the previous year, which is shown here as the agency budget. To find per capita spending, the budget was divided by the 2015 Census Estimates for each county. Rural health departments had the smallest average annual budget of \$711,428 and spent the most per capita at \$90.25. Micropolitan LHDs were in the middle of both categories, with a mean budget of \$911,264 and per capita spending of \$47.27. Finally, urban counties had the largest budgets with a mean of \$4.71 million and per capita mean of \$26.99.

Table 12

Question 7: LHD budget and per capita spending, by size (n=49)

Category	Rural (n=11)	Micropolitan (n=33)	Metropolitan (n=5)	State Average (n=49)
Annual Budget	\$711,428	\$911,264	\$4,707,588	\$1,260,919
Per capita spending	\$90.26	\$47.27	\$26.99	\$56.98

Full-time equivalent is a measure of employment that assigns a full-time employee the value of 1 and anything less than that a corresponding number. For instance, a person who works quarter time is a .25 FTE. The mean FTE for rural LHDs were 8.82, micropolitan 13.94, and metropolitan 47.31. The mean health department

FTEs per 100,000 people is inverse to size, with rural counties at 111.96, micropolitan at 80.95, and urban at 29.0.

Across all categories, primary chronic disease prevention and surveillance was more likely to be conducted by urban LHDs than rural or micropolitan. The differences in direct surveillance and delivery for rural and micropolitan counties varied by topic, but remained below 50% in all categories (Table 13).

Table 13

Question 86 and 87: Services performed directly by the LHD, sorted by size (n=53)

Service performed	Rural (n=12)	Micropolitan (n=36)	Metropolitan (n=5)	State Percent (n=53)
Surveillance for Chronic Disease	25%	27.78%	40%	28.30%
Primary Disease Prevention - Chronic Disease	50%	36.11%	80%	43.40%
Primary Disease Prevention - Nutrition	33.33%	22.22%	80%	43.40%
Primary Disease Prevention - Physical Activity	25%	25%	40%	26.42%
Primary Disease Prevention - Tobacco	33.33%	41.67%	60%	41.51%

In almost all instances urban counties more likely than smaller counties to use evidence-based practice for cancer, cardiovascular diseases, and the risk factors of nutrition, physical activity, and tobacco. Across all categories, there was only a 25% chance that rural counties were using best practices (shown in Table 13).

Table 14

Question 110: Use of evidence-based practice in chronic disease in LHDs, by size

Does the department use evidence-based practice for:	Rural (n=12)	Micropolitan (n=36)	Metropolitan (n=5)	State Percent (n=53)
Cancer	16.67%	13.89%	40%	16.98%
Cardiovascular disease	25%	47.22%	40%	41.51%
Nutrition	25%	38.89%	60%	37.74%
Physical Activity	41.67%	47.22%	60%	47.17%
Tobacco	16.67%	52.78%	80%	47.17%

Finally, 100% of urban counties answered yes to the broad question of providing chronic disease prevention or wellness programs (Question 109). This drops by category, with only 77.78% of micropolitan counties and 66.67% of rural counties answering yes to this question.

Health Improvement Plans and Annual Reports. Less than half of the sample population had an annual report available for analysis (n=23). Breaking the sample up into rural (n=6), micropolitan (n=13), and metropolitan (n=4) will not yield meaningful results. For this reason, annual reports are excluded from analysis on this research question.

Nearly all of the study counties (96.22%) had a HIP available for analysis. Of these, 12 are rural, 35 are micropolitan, and 4 are metropolitan counties. In all diseases and risk factors, metropolitan counties were at or above the percent for all counties. Only physical activity exceeded 50% intention to intervene for all county types. No county

included lower respiratory diseases in the HIP. Table 15 has the full breakout by county size of the future intention to intervene for the leading causes of death and their risk factors.

Table 15

LHD intention to intervene from HIP, by size (n=51)

Cancer - Statewide	7.84%
Rural	8.33%
Micropolitan	5.71%
Metropolitan	25.00%
Cardiovascular disease - Statewide	11.76%
Rural	8.33%
Micropolitan	5.71%
Metropolitan	25.00%
Lower Respiratory Diseases	0.00%
Rural	0.00%
Micropolitan	0.00%
Metropolitan	0.00%
Excessive Alcohol Use	23.53%
Rural	25.00%
Micropolitan	22.86%
Metropolitan	25.00%
Obesity	43.14%
Rural	58.33%
Micropolitan	34.29%
Metropolitan	75.00%
Nutrition	47.06%
Rural	41.67%
Micropolitan	45.71%
Metropolitan	75.00%
Physical Activity	56.86%
Rural	58.33%
Micropolitan	54.29%
Metropolitan	75.00%
Tobacco	33.33%
Rural	25.00%
Micropolitan	34.29%
Metropolitan	50.00%

Barriers to Chronic Disease Prevention

Question 3: What are the barriers preventing health departments from doing more to combat the leading chronic diseases?

Descriptive Statistics. On average, the LHDs in the study (n=53) have 15.92 full-time equivalents (FTEs) with a range of 1 to 63.5 FTEs. This equals is 44.17 per 100,000 population in the study. Table 16 shows selected job classifications:

Table 16

Question 23: Public health specialist FTE, by size (n=53)

Employee Type	Rural (n=12)	Micropolitan (n=36)	Metropolitan (n=5)	State Average (n=53)
Health Educator	0.33	0.91	2.78	0.95
Epidemiologist	0.02	0.14	0.6	0.16
Nutritionist	0	0.06	1.42	0.18
Registered Nurse	2.01	4	7.99	3.96
Preparedness staff	0.16	0.28	0.76	0.3

Nurses were the most employed specialist at all sizes of LHDs and often have clinical duties but can be used in a variety of roles, including leadership positions. Health educators were the next common specialist that can be used in chronic disease prevention, though nurses were more than four times more likely to be found at a LHD. Not related to chronic disease prevention were Emergency Managers, which average .30 per LHD, or almost double the number of epidemiologists and nutritionists.

The average budget for a health department is \$1.26 million dollars per year. The range is \$0 to \$5.39 million. Four counties with 3 or more FTEs reported \$0 for total

expenditures last year and were excluded. However, one county reported \$0 budget, only one FTE, and was based in a clinical care setting, so it was included in the study.

This is equal to \$33.98 per capita in population of the counties studied, with a range of \$0 to \$165.86 per county. This measure gives more weight to the metropolitan counties, who composed less than 10% of the study but had over 50% of the population. Averaging the amount each county spend per capita was \$56.98 per capita, with the amount being the largest for rural counties at \$90.26, then micropolitan counties at \$47.27, and finally \$26.99 for metropolitan counties.

Metropolitan counties also received more funding from local sources, like property taxes. Rural counties received 23.57% from local sources, micropolitan 18.99%, and metropolitan more than double those percentages at 47.31%.

The administrator's level of education varies by the size of the jurisdiction. Larger counties were more likely than rural counties have advanced education, with 100% of the urban counties having an administrator with a master's degree. Conversely, rural administrators were the most likely to have not completed a bachelor's degree at 41.67%. According to the survey these administrators are all Registered Nurses, either through a certificate or associate's degree program. Table 17 has the full breakdown.

Table 17

Question 27: Educational attainment of the public health administrator, by size (n=53)

Degree	Rural (n=12)	Micropolitan (n=36)	Metropolitan (n=5)	Statewide (n=53)
Less than bachelors	41.67%	19.44%	0	22.64%
Unrelated bachelors	0	5.56%	0	3.78%
Health bachelors	41.67%	39.89%	0	35.84%
Health masters	16.67%	36.11%	100%	37.73%

Health Improvement Plans and Annual Reports. There was not consistent data in either HIPs or annual reports to provide information on the barriers counties face in providing primary prevention for the three leading causes of death or their associated risk factors.

Discussion

Local Health Departments Preventing Chronic Disease

The first research question asked if county health departments are using their resources to combat the three leading causes of death. It appears that resources are not being consistently used to combat the three leading causes of death or the three primary risk factors for those diseases, with fewer than half of counties responding to direct action in virtually all facets of chronic disease prevention.

When asked if counties are directly preventing chronic disease in the survey, less than half (43.2%) answered yes (Table 7). In the same question, less than half responded their LHD was doing primary prevention for nutrition (43.4%), tobacco (41.51%), or physical activity (26.42%).

Additionally, Table 8 shows that less than half of LHDs reported using evidence-based practices. These were highest for tobacco and physical activity, but still below half of all counties in the study: tobacco (47.17%), physical activity (47.17%), heart disease (41.51%), nutrition (37.74%), or cancer (16.98%).

The only part of the survey that showed high level of LHD intervention with the three leading chronic diseases and the associated risk factors was involvement on coalitions. More than 50% of counties partnered with a local coalition for tobacco, physical activity, and nutrition; more than 25% did for cancer and heart disease.

The annual reports tell the same story (Table 10). With at least one mention per report, counties are currently taking action the most on tobacco control (43.48%), with physical activity (30.43%) and nutrition (34.78%) appearing about one-third of the time. Alcohol use, not studied in the survey, appears in 8.7% of annual reports.

The HIPs show the intention of a health department to start or continue a program over the next five years, though they are not necessary responsible for conducting it themselves. These show slightly higher results, but only physical activity was included by more than half of counties (56.86%). After that was nutrition (47.06%), obesity (43.14%), tobacco (33.33%), and excessive alcohol use (23.53%). Plans to address the leading causes of death directly were low with heart disease at 11.76%, cancer at 7.84%, and no counties including lower respiratory diseases.

Urban and Rural Differences

The data shows that the metropolitan shows that metropolitan counties (population of 50,000+) consistently perform chronic disease prevention more frequently

than rural and micropolitan counties. However, the data does not conclusively show that micropolitan counties outperformed rural counties.

In the survey question of whether health departments directly performed chronic disease surveillance (Table 13), 40% of metro counties stated they did, versus 27.78% for micro counties and 25% of rural counties. The most marked difference was in nutrition, where 80% of metro counties actively perform the service, versus 22.22% for micropolitan counties and 33.33% for rural counties. However, metro counties also were more likely to directly perform primary prevention for chronic disease, physical activity, and tobacco than micropolitan and rural counties.

In the five areas surveyed (cancer, heart disease, nutrition, physical activity, and tobacco), metro counties reported using evidence-based practice in all instances more often than their rural counterparts. Metro counties were more likely to use evidence-based interventions than micropolitan counties in 4 out of 5 instances. On average, best practices were used by metro counties 56% of the time, micropolitan 40%, and rural 25% (Table 13).

The HIP was the only qualitative measure used to measure rural urban differences, since there were too few annual reports to be subdivided (n=23). Among the eight areas analyzed, metropolitan counties were the most likely to have future intention to act (cancer, heart disease, obesity, nutrition, physical activity, and tobacco). Metro and rural counties had the same intention to address excessive alcohol use (25%) and no county planned to directly address lower respiratory diseases. Among the five risk factors

in the qualitative analysis of the HIPs, on average they appeared least in micropolitan counties (38.29%), then rural (45.83%), and finally urban (60%).

Barriers to Chronic Disease Prevention

The survey data found barriers to preventing the leading chronic diseases, but the statistics by themselves are not conclusive. Metro counties have bigger budgets, more staff, more educated administrators, and more specialists (epidemiologists, health educators, nurses, and nutritionists) than micropolitan and rural counties. This is also true for micropolitan counties when compared to rural counties, but the differences are less pronounced.

A good example of this is budget. Metropolitan areas averaged \$4.7 million per LHD, more than five and six times the average budget of micropolitan and rural LHDs, respectively. However, the population disparity flips the equation for per capita spending, with rural LHDs at \$90.26 per person, micropolitan at \$47.27, and metro at \$26.99.

A clear disparity emerges when comparing budget from local sources. Metro counties receive nearly half (49.94%) of their budget from local taxes, while that number is half that amount for rural (23.57%) and micropolitan (18.99%) counties.

It is not surprising that with bigger budgets come more employees. Rural health departments average 8.82, micropolitan 13.94, and metro 47.31. However, when adjusted for population the staffing ratios invert, with rural at 111.96 FTEs per 100,000; micropolitan at 80.95 per 100,000; and urban at 29 per 100,000.

Some would argue that epidemiology is the cornerstone of public health, but it is not a widely found specialty in Iowa's LHDs. There was only a total of .25 FTE for

between 12 rural counties, 5.12 FTE for 36 micropolitan counties, and 3 FTE for 5 metropolitan counties. This averages out to virtually no epidemiologists in rural areas (.02 per LHD), few in micropolitan areas (.14 per LHD), and a reasonable amount by comparison in metropolitan counties (.6 per LHD).

All of the metropolitan administrators have a master's degree or higher, while 36.11% of administrators in micropolitan LHDs and 16.67% of rural LHD administrators hold the same level of education. The most common degree is a health-related bachelor's, held by 41.67% of rural and 38.89% of micropolitan administrators. Finally, 41.67% of rural and 19.44% of micropolitan administrators hold less than a bachelor's degree.

CHAPTER 5

SUMMARY AND CONCLUSIONS

Introduction

Iowa has 101 health departments working whose goal is to keep people healthy. While this is a noble aim, there were suspicions that LHDs were not responding to the need for chronic disease prevention, instead focusing on direct health services and infectious disease. This study looked at three questions: (1) Are local health departments engaging in primary chronic disease prevention, (2) Are there differences between urban and rural health departments in preventing chronic disease, and (3) What the barriers preventing them from preventing chronic disease.

In order to answer these research questions, a survey and two types of government documents were analyzed. These data sources share one key commonality: all the data were self-reports by the local health department. Thirty-seven data points were used from the survey, and qualitative analysis software was used to objectively look at 84 government documents for mentions of heart disease, cancer, lower respiratory diseases, and their associated risk factors.

Summary

The data from the 2014 Governmental Public Health Survey, annual reports, and HIPs shows that primary prevention for the leading causes of death; heart disease, cancer, and lower respiratory diseases; is inconsistent at LHDs in Iowa. Across all three risk

factors; tobacco use, obesity (composed of physical activity and nutrition), and alcohol use; less than half of counties directly provided services to intervene. It is clear that primary chronic disease prevention is not a priority in health departments.

The second research question looked for differences in between health departments in counties of different size. Metropolitan health departments consistently provided more direct services and had more references to chronic disease in their HIPS and annual reports than both micropolitan and rural health departments. Few differences were found between rural and micropolitan health departments in terms of chronic disease prevention. However, 14 of the 35 micropolitan LHDs (40%) were in counties of less than 15,000 people, which may contribute to the differences between them and rural counties being minimal.

The last question included barriers to addressing the leading causes of death. The survey data shows metropolitan health departments had better budgets, more funding from local sources, and more specialists such as epidemiologists, nutritionists, and health educators. They also have directors with a higher level of education in public health than less populated jurisdictions. Even with all of those advantages, large health departments are still not working consistently to address the risk factors for heart disease, cancer, and lower respiratory diseases.

Conclusions

The data clearly shows that LHDs do not consistently apply their resources for primary chronic disease intervention. If health departments do not adapt to address chronic disease, we will see gains in life expectancy from public health dwindle and

possibly even backslide. However, it is easy to see from the literature that LHDs, especially the smaller ones, never really had a chance.

There is no state mandate for LHDs to address tobacco, obesity, or excessive alcohol use. There are little in the way of funding to prevent the leading causes of death: CDC funding for chronic disease is about \$2.37 per person in Iowa, and it is likely that little of that money makes to the county-level. The state budget is only slightly better, with \$4.66 per capita of direct spending on the leading causes of death or their primary risk factors. Even if this amount was handed over to the LHDs, Ringgold County, the smallest in the study, would only get \$23,616 per year. For most professionals, that is less than half of one year's salary, not including benefits.

Smaller health departments are too busy on health care infrastructure, such as ensuring there is primary care available in the community. It also falls to many small counties to provide home health services, which require considerable staff time. With less than 9 employees at the average rural LHD, there is no extra staff to take on non-mandates like physical activity. Metropolitan counties have less concern about infrastructure, since they are likely to have more clinics, hospitals, and specialists in their jurisdiction. Spending minimal time on infrastructure allows staff to spend their time in other areas.

There is also less funding from local sources than large health departments. Funding from local sources is typically unrestricted, meaning it can be used to address problems that are not funded elsewhere, like primary prevention for most chronic

diseases. Urban counties had nearly half their funding from local sources, while it was less than 20% for micropolitan counties.

These results should be eye-opening for those in leadership positions at the state and federal level. Health departments, especially rural LHDs, are only going to do what are they mandated and funded to do. Priorities need to change from the federal government on down. For example, the federal government (through HRSA) allocated \$10.5 million dollars for HIV/AIDS treatment and prevention last fiscal year and only \$7.8 million for the three leading causes of death. By comparison, 20 Iowans died of AIDS in 2015 while 44,224 Iowans died of heart disease, cancer, and lower respiratory diseases in 2014 (IDPH, 2016e).

These results should also catch the attention of local boards of health. While the average Iowa county has 31,554 residents, the median county size for the state is less half that at 15,527. With an average budget of less than \$1 million for both micropolitan and rural counties, it would be impossible to hire a staff that has all the technical knowledge and subject matter expertise needed to run as described in the IOM's *For the Public's Health: Investing in a Healthier Future*. This includes providing maternal and child health promotion, injury control, communicable disease control, chronic disease prevention (including tobacco control), environmental health, and mental health and substance abuse primary prevention. How does a health department do that with less than 13.94 employees, the average for an Iowa micropolitan LHDs?

This leads to the conclusion that health departments must consolidate if they want to provide comprehensive services within their current budget structures. Rural and

micropolitan health departments are less efficient than metropolitan health departments, employing 111.96 and 80.95 employees per 100,000 people while urban health departments employ far fewer at 29 per 100,000. Consolidation into health districts is allowed and the process is clearly laid in Iowa Code Chapter 137.

Following the data, incorporating health districts would also allow for more specialization among staff, a higher level of education for the director, and more use of evidence-based interventions for less-populated counties. Twenty-seven regional health districts were recommended in the early years of Iowa public health by Emerson (1945) and endorsed by director of the state health department, but no action was taken.

If the state had implemented Emerson's plan, the map in Figure 4 shows what health departments in Iowa would look like with 27 regions. The smallest health department under Emerson's regions (Region 2) would have 50,630 people in its jurisdiction based on the 2015 U.S. Census Bureau estimates, which is 13 times larger than the smallest population currently served by a health department (Adams County, 3796 people). The largest health department by population would remain Polk County (476,611). The median health department jurisdiction under Emerson's regional plan would be 93,671 versus the current state median county size of 15,527. Although this is a 72 year-old plan, it creates a more effective public health system than is currently in place. A population breakdown of each of Emerson's proposed regions can be found in Appendix C.

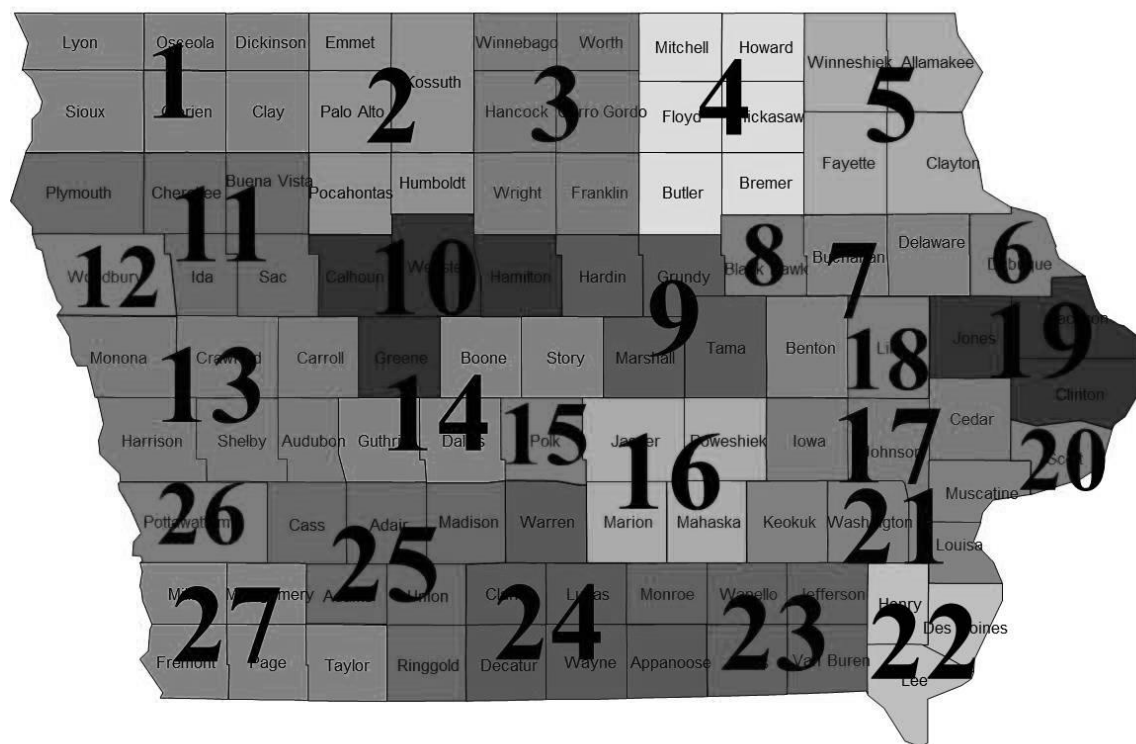


Figure 4: The 27 regional health departments proposed in Emerson's *Local Units of Health for the Nation*, 1945.

The problems with health departments being too small was identified 40 years ago. The Iowa Comprehensive Health Planning Advisory Council's 1976 report stated that the two major problems in local public health were "lack of available funds, and county populations that are too small to permit organization of an economical health department" (p.209). The same report also decried the lack of a legislative requirement stating what programs local health departments must conduct (p. 210), a problem that still exists for chronic disease prevention.

Recommendations for Future Research

1. Evidence-Based Practice

In the survey, the used of evidence-based practice for all areas that were related to the study (cancer, heart disease, nutrition, physical activity, and tobacco) were below 50%. The lack of evidence-based programming was also apparent in annual reports, where many of the activities were “one-offs” or not part of sustained or systematic approach to the problem. For example, a county may discuss partnering with a local grocery store to hold a healthy cooking course. More information is needed to examine why LHDs do not routinely engage in the use of best practices.

2. Public Health Accreditation and Educational Attainment

With 22.64% of administrators with less than a bachelor’s degree, there is a need for educated leadership in the field. Public health accreditation, which IDPH has labeled Iowa Public Health Modernization uses the national Public Health Accreditation Board Standards to “bring more consistency” to the way that public health is delivered across Iowa (IDPH, 2016d). One of those standards in Modernization, Workforce Standard 1, requires that the public health administrator have a “master’s degree or higher...in public health, health administration, or other applicable field” and “three years of experience” or a bachelor’s degree and five years of experience. However, the standard also allows current administrators to remain in place. With 101 health departments in 99 counties with a median population of 15,527 people, will health departments be able to attract and retain qualified staff? Or is this not possible for rural counties?

3. Public Health Accreditation and Chronic Disease Prevention

The 2013 Standards have a section dedicated to Promoting Healthy Behaviors. “Standard HB2: Assure health promotion and prevention services” has two criteria for local health departments to assure the provision of services and to link people to services. Tobacco, nutrition, and physical activity are specifically mentioned, as is the documentation of best or promising practices. Being required to meet this standard may encourage more health department to undertake these activities directly, though without funding to accompany this change, it will remain a challenge.

4. Regionalization of Public Health Services

One of the recommendations of this study, which started with *Emerson’s Local Units of Health for the Nation* in 1945, is the need for regional health departments in order to provide comprehensive chronic disease prevention, especially policy development. There has been no documented action from either IDPH or local health departments to consolidate into larger health districts since the early 1980s despite existing laws which make it possible. Without research, it is difficult to know what the opinions are on changing public health delivery or shuttering county health departments in favor of a regional health department. It is also impossible to address barriers without getting input from a wide-range of stakeholders: individuals, LHD administrators, county boards of health, IDPH leadership, and state lawmakers.

5. County Health Departments and the Local Economy

One concern with a shift toward regionalization could be the closing or reduction in staff in many county health departments. With the median county in Iowa having a

little over 15,000 people, losing 6-7 professional jobs and the possibility of an empty storefront might have an impact on a rural landscape that continues to lose jobs and people. Many towns have fought against school consolidation because of loss of jobs and regional identity, even in the face of districts going bankrupt. Could this be a factor preventing regionalization of public health services?

6. Federal Funding for Chronic Disease

Another area of change that needs measurement is undergoing a shift in how funding is allocated. In the conclusions, it was stated that LHDs are going to do what they are given money to do and what they are required to do. What are the barriers to shifting more money to primary prevention for chronic disease? This is complicated by the fact that public health is funded by multiple federal agencies (CDC, HRSA, SAMSHA, and the Department of Agriculture). If priorities are established with money, the federal government is clearly stating chronic disease prevention is not a priority.

7. State Funding for Chronic Disease

Would the state want to shift the funding if they could? What are the attitudes among leadership at the state level? What do Iowa's lawmakers think about taking money away from other areas to provide more to chronic disease? Chronic disease rarely makes headlines, so it may be difficult to shift funding into an area that people do not complain about. Do Iowans want more funding to prevent heart disease, cancer, and lower respiratory diseases, or are do they accept the current rates as an acceptable normal?

Is there concern that taking money out of communicable disease prevention may lead to higher rates of these diseases? It is possible that higher rates of infectious disease,

many of which are treatable, may well be worth the trade-off for lower rates of cancer and heart disease. However, this paradigm shift might raise concern among a public who has depended on public health to keep it safe from communicable disease through restaurant inspections, testing for sexually transmitted diseases, and laboratory services.

8. ACA Repeal and Prevention Funding

At the time of this writing, President Donald Trump is new to the presidency, Tom Price is the new Secretary of Health and Human Services (HHS), and a Republican congress has vowed to repeal the Affordable Care and Patient Protection Act of 2010 (ACA). As the head of HHS, Tom Price also oversees how the CDC allocates their funding. One area of study would be how the funding shifts for prevention after the change in political party.

The most notable funding stream in the ACA for prevention funding is the Prevention and Public Health Fund. It allocates over \$1 billion for prevention, much of it chronic diseases (HHS, 2016). While funding for Iowa specifically is not available, Table 18 shows \$417.95 million in annual funding for heart disease, cancer, lower respiratory diseases, and associated risk factors.

Table 18

*Prevention and Public Health Fund chronic disease expenditures, Fiscal Year 2017.
Adapted from <https://www.hhs.gov/open/prevention/>*

Program	Annual Funding Amount	Brief Description
Heart Disease and Stroke Prevention Program	\$73,000,000	Implement improved and enhanced heart disease and stroke prevention efforts
Million Hearts Program	\$4,000,000	Improve cardiovascular disease and stroke prevention by promoting medication management and adherence strategies and improving the ability to track blood pressure and cholesterol controls.
Office of Smoking and Health	\$126,000,000	Raise awareness about the harms of tobacco use and exposure to secondhand smoke in areas of the country with high rates of tobacco use prevalence
Preventive Health and Health Services Block Grants	\$160,000,000	Support programs that focus on the leading causes of death and disability and the ability to respond rapidly to emerging health issues, including outbreaks of foodborne infections and waterborne diseases.
Racial and Ethnic Approaches to Community Health (REACH)	\$50,950,000	Improve linkages between the health care system and minority communities with unique social, economic, and cultural circumstances; and change the chronic disease conditions and risk factors in local communities.
National Early Child Care Collaboratives	\$4,000,000	Support efforts to improve physical activity and nutrition environments in early childhood education (ECE) settings.

9. ACA Repeal and Screenings

The Affordable Care Act provided incentives for secondary prevention by (1) Removing patient costs for preventive screenings, such as annual physical examinations, mammograms, and preventive colonoscopies and (2) Expanding the number of people who had insurance that could utilize it to get the aforementioned screenings. If the ACA

is repealed and the replacement for it (if any) does not include screenings at no cost, people seeking these services might look to public health departments to provide them.

10. Cultural Shifts and Continued Infectious Disease Vigilance

While the research may point toward too many resources being used unnecessarily toward infectious disease, the literature review also stated that immigrant and refugee groups coming into Iowa could be bringing infectious diseases that are not usually seen in rural parts of the state, like Chagas and tuberculosis. County health departments need to maintain the capability to handle these threats with local nurses and laboratory services. Conversely, an urban health or a regional health department is more likely to have the capacity to handle language and cultural barriers than a rural health department. It is possible when departments consolidate to better serve the majority of people it creates a situation where immigrants and refugees actually see a decline in the quality of services available.

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APPENDIX A

2014 LOCAL GOVERNMENTAL PUBLIC HEALTH SURVEY

Default Question Block

Thank you so much for providing information to help evaluate Iowa's governmental public health system!

The following set of questions will help the Public Health Evaluation Committee assess organizational capacity and service provision at the local level. Please answer each question as it relates to your agency. You may need to contact the Environmental Health Administrator for your county to answer a few questions about environmental health.

Information collected through this survey is not anonymous; however individual responses will be kept confidential.

1. Please provide the following information in case we have questions for you. (Individual responses will remain confidential; data will be aggregated for reporting purposes).

Name:

Agency:

County:

Email:

Phone #:

2. What is your preferred means of contact?

☐ Email

☐ Phone

3. With whom did you consult outside your agency to be able to complete this survey? Please list the name, title, and organization of the individuals below.

4. What is the population of your county?

- ☐ <8,000
- ☐ 8,000- 11,999
- ☐ 12,000 – 17,999
- ☐ 18,000 – 24,999
- ☐ 25,000 – 49,999
- ☐ 50,000 – 74,999
- ☐ 75,000 +

5. Do you have a joint public health/environmental health department?

- ☐ Yes
- ☐ No

6. Do you have an established memorandum of understanding or other formal agreement that defines the working relationship between public health and environmental health?

- ☐ Yes
- ☐ No

NEW SECTION: The purpose of this section is to collect agency – level fiscal data to enable the Public Health Evaluation Committee to analyze trends in public health funding and expenditures.

7. What were your agency's total expenditures for the previous fiscal year? (Please provide a whole number without symbols or decimals (e.g. 234 000))

8. What percentage of your total expenditures for the previous year was spent on salary and fringe?

9. What was your public health agency's actual revenue for the previous fiscal year? (Please provide a whole number without symbols or decimals.g. 234000)

10. For your most recently completed fiscal year, what were the total revenues (provide actual revenue figures and enter whole numbers in dollars) from the following?

	Amount of Revenue \$
Local Sources - Revenue originating from county, city, or town government, e.g. allocations from city or county- school boards, taxing districts, property tax millage, etc.	
State sources - All revenues received from state agencies, both income that originates from state revenue sources and income received from state agencies that originates from Federal Sources.	
Federal direct sources - All income received <u>directly</u> from Federal government agencies, <u>excluding</u> Medicaid/Medicare reimbursements. Do <u>not</u> include federal funds that you receive through a state agency.	
Medicare and Medicaid - All income received from Medicare, including Medicare HMO payments and all income received from Medicaid including Medicaid HMO capitation and any "bill-aboves" paid by a Medicaid HMO.	
Other clinical revenue - Includes all income received from private health insurers and fees for provision of health care services paid directly by the patient.	
All other revenue sources - Enter the sum of revenue from all sources except those listed above. These may include (but are not limited to) fees and fines, grants from private foundations, donations, and interest income.	

11. Do the revenue numbers reported include environmental health?

- ☐ Yes
☐ No

12. Does your agency have a rollover reserve fund or contingency fund (restricted or unrestricted) that allows the agency to accumulate fund balances from year to year for use by the agency?

- ☐ Yes
☐ No

13. If yes, does your agency control the use of these funds?

- ☐ Yes
☐ No

NEW SECTION: The purpose of this section is to collect information about grant writing activities at your agency.

14. Does your agency write grant applications?

- ☐ Yes
- ☐ No

15. If yes, which response best describes grant-writing activities at your agency?

- ☐ Grant writing is done entirely by staff
- ☐ Grant writing is done by staff with outside assistance
- ☐ Grant writing is contracted to an outside organization

16. Have staff received grant writing training?

- ☐ Yes
- ☐ No

17. What types of grant writing training have staff participated in during the past 12 months? (Select all that apply)

- ☐ Staff have not attended training in the past 12 months
- ☐ Informal mentoring
- ☐ Webinars
- ☐ Off-site formal workshops
- ☐ Conferences
- ☐ Other online courses
- ☐ On-site formal (classroom) workshops
- ☐ Training for specific grant
- ☐ Other, please specify _____

NEW SECTION: The purpose of this section is to collect information on personnel policies, staffing levels, recruitment and retention, and professional development activities.

18. Which of the following statements best describes your agency's personnel policies?

- ☐ Personnel policies are specific to our agency
- ☐ Personnel policies are centralized within the municipality (county-wide, city-wide)
- ☐ Personnel policies are a blend of county and agency personnel policies
- ☐ My agency does not have formal personnel policies

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- ☐ My agency does not have formal personnel policies

23. Provide the FTE of staff in each classification below. (If a person has multiple roles within the agency please indicate their FTE in the appropriate areas. For examples: If a full-time public health administrator spends 75% of their time as a public health manager, 15% of their time conducting home health visits, and 10% of their time investigating infectious diseases, you would list .75 public health manager, .15 home health nurse, and .10 infectious disease investigator.)

	# FTE
Public health managers - Health service managers, administrators, health directors overseeing the operations of the agency or of a department or division. Include the top agency executive in this category regardless of education or licensing.	
Administrative or clerical personnel - Support staff providing assistance in agency programs or operations.	
Behavioral health professional - Behavioral health professional (e.g., public health social workers, HIV/AIDS counselors, mental health and substance abuse counselors, and community organizers).	
Oral health care professional - Includes dentists, dental hygienists, and dental technologists.	
Emergency preparedness staff - Staff members whose regular job duties involve preparing for (e.g., developing plans, procedures, and training programs) and managing the local public health response to all-hazards events.	
Environmental health worker - Environmental health specialists, scientists, and technicians, including registered and other sanitarians.	
Epidemiologist - Conducts on-going surveillance, field investigations, analytic studies and evaluation of disease occurrence and disease potential and makes recommendations on appropriate interventions.	
Health educator - Designs, manages, implements, evaluates, and provides consultation on educational programs and strategies to support and modify health-related behaviors of individuals families, organizations, and communities and to promote the effective use of health programs and services.	
Nursing aide and home health aide - Unlicensed personnel who provide basic patient care and assistance with activities of daily living in a health care facility or the patient's home (e.g., nursing assistant, patient care assistant/technician, home health aide/assistant, personal care aide).	
Information systems specialist - Includes computer system, network, and data base administrators and analysts; software engineers; and computer support specialists.	
Laboratory worker - Laboratorians, laboratory	

24. Has your agency had difficulties filling positions during the past 12 months?

- ☐ Yes
- ☐ No

25. During the past 12 months which jobs have you had difficulties filling in your agency (Select all that apply)?

- ☐ Home Health Aide (Providing Direct Care)
- ☐ Home Health Nurse (Providing Direct Care)
- ☐ Public Health Nurse
- ☐ Environmental Sanitarian Specialists
- ☐ Public Health Managers
- ☐ Nurse Practitioner/Physician Assistant
- ☐ Dental Hygienist
- ☐ Emergency Preparedness staff
- ☐ Health Educator
- ☐ Information Technologist Specialist
- ☐ Laboratory staff
- ☐ Other, please specify _____

26. In the past 12 months, which of the following barriers has your agency experienced when trying to fill positions (Select all that apply)?

- ☐ Lack of available qualified applicants
- ☐ Ability to offer a competitive compensation package (e.g., wages, benefits)
- ☐ Rural location
- ☐ Travel Requirements
- ☐ Undesirable work hours
- ☐ Other, Please Specify _____

27. Which of the following best describes the education of the Public Health Administrator in your agency?

- ☐ Bachelor's degree from an accredited college or university in public health, health administration, or other applicable field
- ☐ Master's degree or higher from an accredited college or university in public health, health administration, or other applicable field
- ☐ Bachelor's degree not in public health or other applicable field
- ☐ Other, please specify. _____

28. How many years of experience in public health does your agency administrator have?

- ☐ 0-2 years
- ☐ 3-5 years
- ☐ 6+ years

29. Which of the following best describes the education of the public health coordinator/supervisor in your agency? (The public health coordinator is sometimes referred to as a manager, and is considered a mid-level supervisor.)

- ☐ We do not have a public health coordinator
- ☐ Public health coordinator and Public Health administrator are the same person
- ☐ Bachelor's degree or higher from an accredited college or university in public health administration, nursing or other applicable field
- ☐ RN with additional education/experience in public health
- ☐ Other, Please describe _____

30. How many years of experience in public health does your agency public health coordinator/supervisor have?

- ☐ Less than 1 year
- ☐ 1 year
- ☐ 2 years
- ☐ 3-5 years
- ☐ 5+ years

31. Which of the following best describes the education of the environmental health coordinator/supervisor in your county?

- ☐ Bachelor's degree in a science field
- ☐ Bachelor's degree in an unrelated field
- ☐ RN with additional education/experience in environmental health
- ☐ The environmental health coordinator and the public health administrator are the same person
- ☐ Other, please describe _____

32. How many years of experience in environmental health does the environmental health coordinator in your county have?

- ☐ Less than one year
- ☐ 1 year
- ☐ 2 years
- ☐ 3-5 years
- ☐ 5 + years

33. Which of the following certifications does the environmental health coordinator/supervisor have in your county? (Select all that apply).

- ☐ Registered Sanitarian (RS) or Registered Environmental Health Specialist (REHS)
- ☐ Certified Environmental Health Technician (CEHT)
- ☐ Certified in Comprehensive Food Safety (CCFS)
- ☐ Certified Installer of Onsite Wastewater Treatment Systems (CIOWTS)
- ☐ Certified Professional – Food Safety (CP-FS)
- ☐ Healthy Homes Specialist Credential (HHS)

34. Which of the following trainings has the public health administrator completed? (Select all that apply).

- ☐ Accreditation
- ☐ Basic epidemiology
- ☐ Community planning
- ☐ Contracts
- ☐ Critical thinking
- ☐ Evaluation
- ☐ Financial Management
- ☐ Finding and evaluating health information on the internet
- ☐ Grant writing
- ☐ Human resources
- ☐ Knowledge of public health
- ☐ Marketing
- ☐ Overall aspects of managing an agency
- ☐ Performance Management
- ☐ Public Health Law
- ☐ Quality Improvement
- ☐ Risk communication
- ☐ Strategic planning
- ☐ Workforce development planning
- ☐ None of the above

35. Please identify in which of the following areas your public health administrator would like additional training? (Select all that apply).

- ☐ Accreditation
- ☐ Basic epidemiology
- ☐ Community planning
- ☐ Contracts
- ☐ Critical thinking
- ☐ Evaluation
- ☐ Financial Management
- ☐ Finding and evaluating health information on the internet
- ☐ Grant writing
- ☐ Human resources
- ☐ Knowledge of public health
- ☐ Marketing
- ☐ Overall aspects of managing an agency
- ☐ Performance Management
- ☐ Public Health Law
- ☐ Quality Improvement
- ☐ Risk communication
- ☐ Strategic planning
- ☐ Workforce development planning
- ☐ Other, please specify _____

36. Does your agency have a workforce development plan? (A public health workforce development plan sets forth objectives and strategies that are aimed at training or educational programs to bring public health employees up to date on the skills necessary to do their jobs better or to train the next generation of public health workers and leaders. Rowitz, L. *Public Health Leadership, 3rd Ed.* Jones and Bartlett, 2014)

- ☐ Yes
- ☐ No

37. Which of the following best describes how often your agency conducts a workforce assessment?

- ☐ Every 1-2 years
- ☐ Every 3-4 years
- ☐ Once in a while but there is no regular schedule
- ☐ Never

38. Does your employer offer incentives to employees for obtaining credentials in their field? (eg RS, CHES, REHS, certified lead inspector, certified public health professional)

- ☐ Yes
☐ No

39. Which types of incentives are made available to employees (Select all that apply)?

- ☐ Staff allowed to use work time to obtain or maintain credentials
☐ Pays for credentialing
☐ Pays a bonus for being credentialed
☐ Other, please specify _____

40. Which of the following does your agency's employer pay, in order for staff to obtain or maintain job-related credentials (Select all that apply)?

- ☐ Class fees
☐ Study materials
☐ Exam fees
☐ Employer does not pay for expenses related to getting or maintaining job-related credentials

41. Does your employer pay for staff to obtain continuing education?

- ☐ Yes
☐ No

42. Does your employer pay for tuition for staff to take courses toward an academic degree (e.g., Master's Degree, Bachelor's degree, or certificate) in a public health related field?

- ☐ Yes
☐ No

NEW SECTION: The purpose of this section is to collect information about strategic planning, community needs assessment activities, and health improvement planning.

43. Has your agency developed a comprehensive, agency-wide strategic plan?

- ☐ Yes
☐ No

44. Is the strategic plan linked to your community health improvement plan?

- ☐ Yes
- ☐ No

45. Who participates in developing and revising your agency's strategic plan? (Select all that apply)

- ☐ Local health department
- ☐ Board of Health
- ☐ General public
- ☐ Local medical professionals/organizations
- ☐ Local non-profit groups
- ☐ Board of Supervisors
- ☐ Environmental health agency
- ☐ Organizations that have contracts with your agency for service delivery
- ☐ State health department
- ☐ Other: Please specify. _____

46. How is your agency's strategic plan used? (Select all that apply)

- ☐ Program planning
- ☐ Budgeting
- ☐ Determining training needs
- ☐ Performance measurement
- ☐ Reorganizing agency structure
- ☐ Marketing/media
- ☐ Personnel/hiring
- ☐ None of the above
- ☐ Other, please describe: _____

47. How often is the strategic plan updated?

- ☐ More than once a year
- ☐ Annually
- ☐ Every 2 years
- ☐ Every 3 years
- ☐ Every 4+ years

48. What is the frequency with which your agency goes through a comprehensive strategic planning process?

- ☐ Annually
- ☐ Every 2 years-3 years
- ☐ More than 3 years but less than five
- ☐ Every 5 years

49. How often is the strategic plan reviewed/reported on with the Board of Health?

- ☐ Quarterly
- ☐ Twice a year
- ☐ Annually
- ☐ Every 2 years
- ☐ Never

50. Does your agency have a written continuity of business plan? (A plan to address roles and responsibilities in the event of a long term absence or a vacancy).

- ☐ Yes
- ☐ No

51. Does your agency have a health profile for your jurisdiction? (A standard set of population-based core public health indicators that describes the health status of the jurisdiction and includes trends to show multiple years of data.)

- ☐ Yes
- ☐ No

52. How often are you updating your community health needs assessment (CHNA)?

- ☐ More than once a year
- ☐ Annually
- ☐ Every 2 years
- ☐ Every 3 years
- ☐ Every 4 years
- ☐ Every 5 years

53. How are you using the community health needs assessment? (Select all that apply)

- ☐ To write/update the community health improvement plan
- ☐ As a resource for prioritizing and planning services
- ☐ As a resource for grant writing
- ☐ We share the information with community partners
- ☐ To educate the local board of health/local boards of supervisors on the needs of our jurisdiction
- ☐ None of the above
- ☐ Other, please describe

54. Has your community developed a health improvement plan?

- ☐ Yes
- ☐ No

55. Who was involved in developing your community's health improvement plan? (Select all that apply)

- ☐ Business/industry representatives
- ☐ Community-based organizations
- ☐ Educational system
- ☐ Elected official representation
- ☐ Emergency Management
- ☐ EMS
- ☐ Environmental health agency
- ☐ Faith-based organizations
- ☐ Fire
- ☐ Human services agencies
- ☐ Judicial system
- ☐ Law enforcement
- ☐ Local board of health
- ☐ Local health care providers (hospitals, clinics, practitioners)
- ☐ Local public health agency
- ☐ Media
- ☐ Members of the general public
- ☐ Other public health system agencies (substance abuse, problem gambling, and mental health providers)
- ☐ Other, please describe

56. How does your agency use the health improvement plan? (Select all that apply)

- ☐ Building partnerships
- ☐ Educating stakeholders, partners, elected officials, or the community
- ☐ Program planning
- ☐ Identifying funding opportunities
- ☐ Advocacy
- ☐ Budgeting
- ☐ For activities related to the Affordable Care Act
- ☐ None of the above
- ☐ Other, please describe _____

57. How often does your agency review the health improvement plan?

- ☐ More than once a year
- ☐ Annually
- ☐ Every 2 years
- ☐ Every 3 years
- ☐ Every 4 years
- ☐ Every 5 years

NEW SECTION: The purpose of this section is to collect information about the information technology (IT) infrastructure of local governmental public health.**58. How is information technology (IT) maintained for your agency?**

- ☐ IT is maintained by a contractor
- ☐ IT is solely maintained by the county/city
- ☐ IT is maintained by dedicated staff in the agency (.25 FTE or greater)
- ☐ No person or agency is dedicated to maintaining our IT
- ☐ IT is maintained by the county/city, but we have an assigned staff person

59. Which operating system does your agency currently use? (Select all that apply)

- ☐ iOS
- ☐ Windows XP
- ☐ Vista
- ☐ Windows 7
- ☐ Windows 8
- ☐ Other: Please describe _____

60. Does your agency use a shared drive/network?

- ☐ Yes
- ☐ No

61. How is your agency's computer system backed up?

- ☐ Offsite
- ☐ Onsite
- ☐ Don't know

62. How often is your agency's computer system backed up?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Less frequently than every month
- ☐ Never

NEW SECTION: The purpose of this section is to collect information about how local public health agencies provide information to and communicate with Iowans.

63. Select the top three ways your agency educates people in your jurisdiction about the public health services that are available to them?

- ☐ Agency-generated newsletters
- ☐ Announcements at public meetings
- ☐ Brochures
- ☐ Coalition meetings
- ☐ Direct Email
- ☐ Email distribution lists
- ☐ Health fairs
- ☐ Information booth at community events
- ☐ Letters to the Editor
- ☐ Meeting with health care providers
- ☐ Posters/flyers
- ☐ Press releases
- ☐ Purchase media (e.g. newspaper, radio, ads)
- ☐ Website
- ☐ Social Media

64. Does your agency use social media for education and outreach?

- ☐ Yes
- ☐ No

65. Does your agency have the authority to update its website?

- ☐ Yes
- ☐ No

66. Does your agency have the technical resources to update the website?

- ☐ Yes
- ☐ No

67. Does your agency have communication procedures to provide information outside the health department about the role and value of public health?

- ☐ Yes
- ☐ No

68. Do any jobs in your agency require staff to be bilingual?

- ☐ Yes
☐ No

69. Which languages are staff required to speak as a job requirement?

- ☐ Spanish
☐ Other: Please list

70. Does your agency have access to interpreters or interpretive services for non-English speaking clients/patients (eg. language line)?

- ☐ Yes
☐ No

71. If yes, how often are these services used?

- ☐ Daily
☐ Weekly
☐ Monthly
☐ Bi-Monthly
☐ Quarterly
☐ Annually

NEW SECTION: The purpose of this section is to collect information about how programs and services are evaluated and how findings are used to make improvements.

72. Has your agency developed goals and objectives for all public health programs and services?

- ☐ Yes
☐ No

73. Please complete the following statement. Within my agency, performance measures have been identified for. (Select all that apply)

- ☐ Grant funded programs/services
- ☐ Non-grant funded programs/services
- ☐ Administrative functions
- ☐ Strategic plan
- ☐ Other, please describe
- ☐ None of the above

74. How often does your agency evaluate programs and public health services?

- ☐ Monthly
- ☐ Bimonthly
- ☐ Quarterly
- ☐ Annually
- ☐ Other, please describe

75. Which of the following statements best characterizes your agency's current quality improvement activities?

- ☐ My agency's quality improvement activities are informal or ad hoc in nature.
- ☐ Formal quality improvement activities are being implemented in specific programming or functional areas of the agency, but not on an agency-wide basis.
- ☐ We have implemented a formal quality improvement program agency-wide.
- ☐ My agency is not currently involved in quality improvement activities.

76. Which of the following elements have been used in your agency's quality improvement efforts in the past year? (Select all that apply)

- ☐ Setting measurable objectives
- ☐ Obtaining baseline data
- ☐ Identifying root causes
- ☐ Testing the effects of an improvement strategy/intervention
- ☐ Mapping a process
- ☐ Analyzing the results of the test
- ☐ Formally adopting a tested intervention
- ☐ None of the above
- ☐ Other, please describe

77. In what ways does your agency support or encourage staff involvement in quality improvement efforts? (Select all that apply)

- ☐ We send staff to QI training.
- ☐ We allow staff work time to take online QI training.
- ☐ We provide training to staff in QI methods.
- ☐ We share information about quality improvement projects and efforts with the local board of health.
- ☐ Our staff participates in quality improvement efforts.
- ☐ Quality improvement is included in job descriptions for one or more employees.
- ☐ A quality improvement committee to coordinate QI has been formed.
- ☐ None of the above
- ☐ Other, please specify _____

78. Does your agency have an agency-wide quality improvement plan?

- ☐ Yes
- ☐ No

79. If yes, is your agency's quality improvement plan linked to your strategic plan?

- ☐ Yes
- ☐ No

80. Does your agency have a formal process for assessing customer satisfaction? (Pick one)

- ☐ Not At All
- ☐ In some programs
- ☐ In all programs
- ☐ Agency-wide

NEW SECTION: The purpose of this section is to define what services and activities are provided by the agency directly and which are being provided by other organizations. This information will help to define the broad scope of services provided by Iowa's local governmental public health system.

Please indicate whether your agency performs the activity or service directly, contracts out the activity or service, or if the activity or service is provided in the community independent of local health department funding.

Please do not leave any rows blank. So even if the activity is not available in the community or you don't know please indicate that.

81. IMMUNIZATIONS

	Performed by local health department directly	Contracted out by local health department	Provided by others in the community independent of local health department funding	Not available in the community	Don't Know
Adult Immunizations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Childhood Immunizations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

82. SCREENING FOR DISEASES/CONDITIONS

	Performed by local health department directly	Contracted out by local health department	Provided by others in the community independent of local health department funding	Not available in the community	Don't know
Blood lead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cardiovascular Disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High blood pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HIV/AIDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STD's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tuberculosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

83. TREATMENT FOR COMMUNICABLE DISEASES

	Performed by local health department directly	Contracted out by local health department	Provided by others in the community independent of local health department funding	Not available in the community	Don't know
HIV/AIDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STD's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tuberculosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

84. MATERNAL AND CHILD HEALTH

	Performed by local health department directly	Contracted out by local health department	Provided by others in the community independent of local health department funding	Not available in the community	Don't know
Family Planning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prenatal care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obstetrical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WIC (Women, Infants, and Children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Home visits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EPSDT (Early and Periodic Screening, Diagnosis, and Treatment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well Child Clinic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

85. OTHER HEALTH SERVICES

	Performed by local health department directly	Contracted out by local health department	Provided by others in the community independent of local health department funding	Not available in the community	Don't know
Behavioral/mental health services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comprehensive primary care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Home health care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oral health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Substance abuse services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

86. SURVEILLANCE ACTIVITIES

	Performed by local health department directly	Contracted out by the local health department	Provided by others in the community independent of local health department funding	Not available in the community	Don't know
Behavioral risk factors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communicable/infectious disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Syndromic surveillance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Injury	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

87. POPULATION-BASED PRIMARY PREVENTION ACTIVITIES

	Performed by local health department directly	Contracted out by the local health department	Provided by others in the community independent of local health department funding	Not available in the community	Don't know
Chronic disease programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Injury prevention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mental illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nutrition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oral health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Substance abuse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tobacco	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unintended pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Violence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

88. REGULATION, INSPECTION, AND/OR LICENSING ACTIVITIES

	Performed by local health department directly	Contracted out by the local health department	Provided by others in the community independent of local health department funding	Not available in the community	Don't know
Body art (tattoos, piercings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food Processing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food service establishments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health related facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hotels/motels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Housing (Healthy Homes Inspections)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Housing (Building Codes Inspections)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Private drinking water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Drinking Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solid waste haulers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Septic systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smoke-Free ordinances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swimming pools (Public)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tanning facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

89. OTHER ENVIRONMENTAL HEALTH ACTIVITIES

	Performed by local health department directly	Contracted out by the local health department	Provided by others in the community independent of local health department funding	Not available in community	Don't know
Air Pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Collection of Unused Pharmaceuticals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food Safety Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groundwater protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hazardous waste disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hazmat response	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Indoor air quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land use planning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nuisance complaints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vector control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

90. OTHER ACTIVITIES

	Performed by local health department directly	Contracted out by the local health department	Provided by others in the community independent of local health department funding	Not available in community	Don't know
Animal control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asthma prevention and/or management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correctional Health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Medical Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laboratory Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medical Examiner's Office	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Occupational Safety and Health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outreach and enrollment for medical insurance (including Medicaid)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
School based clinics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
School health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
School audits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Veterinarian public health activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vital records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

91. Does your agency provide any service or activity, not listed in any of the previous sections, that accounts for less than .20 FTE.

☐ Yes

☐ No

92. Please list each service or activity provided by your agency, not previously mentioned in the sections above, that accounts for less than .20 FTE.

NEW SECTION: The purpose of this section is to collect information about injury prevention services.

93. Does your agency provide intentional injury prevention services?

- ☐ Yes
☐ No

94. Is your agency active in a partnership to address intentional injury prevention?

- ☐ Yes
☐ No

95. Does your agency provide unintentional injury prevention services? (Eg. brain injury prevention, fall prevention, poisons prevention, etc.)

- ☐ Yes
☐ No

96. Is your agency active in a partnership to address unintentional injury prevention?

- ☐ Yes
☐ No

NEW SECTION: The purpose of this section is to collect information about environmental health.**97. Please rate the coordination between public health and environmental health in your jurisdiction.**

- ☐ Excellent working relationship
☐ Good working relationship
☐ Fair working relationship
☐ Poor working relationship
☐ No Coordination

98. How often are environmental health policy and procedure manuals reviewed?

- ☐ Annually
☐ 2-3 Years
☐ 4-5 years
☐ More than 5 years
☐ Never

99. How often does your agency review public health policy and procedure manuals?

- ☐ Annually
- ☐ 2-3 years
- ☐ 4-5 years
- ☐ More than 5 years
- ☐ Never

100. Has your local board of health adopted the minimum rules and regulations required by Iowa Code for onsite wastewater.

- ☐ Yes
- ☐ No

101. Has your local board of health adopted the minimum rules and regulations required by Iowa Code for water wells?

- ☐ Yes
- ☐ No

102. Does your agency enforce public health nuisance ordinances or regulations?

- ☐ Yes
- ☐ No

103. Does your county have a local nuisance ordinance?

- ☐ Yes
- ☐ No

NEW SECTION: The purpose of this section is to collect information about disease prevention capacity.**104. Does your agency conduct infectious disease investigations?**

- ☐ Yes
- ☐ No

105. Does your agency have trained staff (completed a minimum of 6 hours of disease prevention, disease surveillance, epidemiological, or closely related training each year) to conduct infectious disease investigations?

- ☐ Yes
- ☐ No

**106. Who does your agency rely on to provide expertise on disease investigations?
(Select all that apply)**

- ☐ State health department
- ☐ Local home health agency
- ☐ Local medical clinic/provider
- ☐ Local hospital
- ☐ Other local health department

**107. Does your agency have surge capacity established to address large outbreaks
(personnel, equipment, facilities, etc.)?**

- ☐ Yes
- ☐ No

108. If no, what gaps does your agency have in its ability to respond?

NEW SECTION: The purpose of this section is to collect information about activities that are designed to prevent chronic disease and promote individual health and wellness.

**109. Does your agency provide chronic disease prevention or wellness
programs/services?**

- ☐ Yes
- ☐ No

110. In which of the following areas are evidence-based interventions used to provide prevention programming in your agency? (Select all that apply)

- ☐ Asthma
- ☐ Cancer
- ☐ Cardiovascular disease
- ☐ Food safety
- ☐ Gambling
- ☐ Indoor air quality (radon)
- ☐ Lead poisoning
- ☐ Nutrition
- ☐ Physical activity
- ☐ Reproductive Health
- ☐ Substance Abuse
- ☐ Tobacco

111. Does your agency participate in a coalition, or other form of community partnership, to promote healthy behaviors in your community?

- ☐ Yes
- ☐ No

112. In which of the following areas does your agency participate in a coalition, or other form of partnership, to promote healthy behaviors in your jurisdiction? (Select all that apply)

- ☐ Air quality
- ☐ Asthma
- ☐ Cancer
- ☐ Cardiovascular disease
- ☐ Gambling
- ☐ Lead Poisoning
- ☐ Nutrition
- ☐ Physical activity
- ☐ Reproductive health
- ☐ Substance abuse
- ☐ Tobacco
- ☐ Other: Please describe _____

NEW SECTION: The purpose of this section is to collect information about preparedness activities.

113. Did your agency participate in any emergency preparedness activities in the last year?

- ☐ Yes
☐ No

114. To what extent are public health preparedness efforts dependent on the availability of grant funding?

- ☐ Entirely
☐ Mostly
☐ Partly
☐ Not at all

115. Is your agency included in county disaster plans?

- ☐ Yes
☐ Yes, but only for health/environmental health related disasters
☐ No

NEW SECTION: The purpose of this section is to collect information on local governing entities.

116. The BOH has direct oversight over environmental health/sanitarian services as it relates to: (Select all that apply)

- ☐ Advising administrator on policies, programs, and budgets
☐ Proposing public health ordinances
☐ Adopting public health ordinances
☐ Setting and imposing fees
☐ Setting policies, goals, and priorities that guide EH services
☐ Approving the environmental health budget
☐ Making legal decisions
☐ Hiring and firing the environmental health administrator/sanitarian

117. The BOH has direct oversight over local health department services as it relates to: (Select all that apply)

- ☐ Advising administrator on policies, programs, and budgets
- ☐ Proposing public health ordinances
- ☐ Adopting public health ordinances
- ☐ Setting and imposing fees
- ☐ Setting policies, goals, and priorities that guide public health services
- ☐ Approving the public health department budget
- ☐ Making legal decisions
- ☐ Hiring and firing the public health administrator

118. Do any Board of Health members serve as a member of the county Board of Supervisors?

- ☐ Yes
- ☐ No
- ☐ The Board of Supervisors also acts as our Board of Health

119. Is a Board of Supervisor member designated as a liaison to the local board of health?

- ☐ Yes
- ☐ No

120. Does your city/county have difficulty recruiting members of the board of health?

- ☐ Yes
- ☐ Yes, but only the Medical Director
- ☐ No

121. Which of the following best describes how often your local board of health meets?

- ☐ More than monthly
- ☐ Monthly
- ☐ Every other month
- ☐ Quarterly

NEW SECTION: The purpose of this section is to collect information about the level of activity in local public health related to the Public Health Accreditation Board (PHAB) standards.

122. Has your agency begun preparation activities to meet the Public Health Accreditation Board's standards?

- ☐ Yes
☐ No

123. Are you considering applying to PHAB for accreditation?

- ☐ Already did
☐ Yes
☐ No
☐ Undecided

124. If yes, within what time frame?

- ☐ Less than one year
☐ 1-2 years
☐ 3-5 years
☐ 6-8 years

125. Which of the following groups have you discussed the PHAB standards with? (Select all that apply)

- ☐ Local board of health
☐ Staff
☐ Community partners
☐ Other, please list _____
☐ None of the above

126. Has your agency been impacted by the Affordable Care Act?

- ☐ There's been no change.
☐ There have been a few changes.
☐ There have been a lot of changes.

127. Please describe how the ACA has impacted your agency.

APPENDIX B

2014 LOCAL GOVERNMENTAL PUBLIC HEALTH SURVEY DATA

Survey Question (with original number)	Average	Range
7. What were your agency's total expenditures for the previous fiscal year?	\$1,235,186	0 - \$5,388,338
8. What percentage of your total expenditures for the previous year was spent on salary?	67.13%	0 - 87.00%
10. For your most recently completed fiscal / year, what were the total revenues - Revenue originating from county, city, or town government, e.g. allocations from city or-county- school boards, taxing districts, property tax millage, etc	362,064.8	0 - 3,648,593
20. How many individuals currently work for your agency?	18.47	2 - 68
21. What is the total FTE number at your agency?	15.92	1 - 63.5
23. Provide the FTE of staff in each classification below.		
Emergency preparedness staff	0.3	0 - 4
Public health managers	2.58	.1 - 9
Epidemiologist	0.15	0 - 2
Health educator	0.95	0 - 12.25
Nutritionist	0.17	0 - 3.6
Registered Nurse	3.88	0-24.4
27. Which of the following best describes the education of the Public Health / Administrator?		
	Number	Percent
Bachelor's in a Health Field	19	35.84%
Master's in a Health Field	20	37.73%
Unrelated Bachelor's	2	3.78%
Less than a Bachelor's	12	22.64%
	Yes	No
14. Does your agency write grant applications?	50	3

Does your department directly perform:	Yes	No
82. Screening for diseases/conditions -Cancer	7	46
82. Screening for diseases/conditions - Cardiovascular Disease	6	47
85. Other Health Services -Home health care	37	16
86. Surveillance activities-Communicable/infectious disease	48	5
86. Surveillance activities -Chronic disease	15	38
87. Population-based primary prevention activities - Chronic disease programs	23	30
87. Population-based primary prevention activities - Nutrition	16	37
87. Population-based primary prevention activities - Physical activity	14	39
87. Population-based primary prevention activities - Tobacco	22	31
109. Does your agency provide chronic disease prevention or wellness programs/services?	41	12
110. In which of the following areas are evidence-based interventions used to provide prevention - Cancer	9	44
110. In which of the following areas are evidence-based interventions used to provide prevention - Cardiovascular disease	22	31
110. In which of the following areas are evidence-based interventions used to provide prevention - Nutrition	20	33
110. In which of the following areas are evidence-based interventions used to provide prevention- Physical activity	25	28
110. In which of the following areas are evidence-based interventions used to provide prevention- Tobacco	25	28
112. In which of the following areas does your agency participate in a coalition? -Cancer	15	38

112. In which of the following areas does your agency participate in a coalition? -Cardiovascular disease	18	35
112. In which of the following areas does your agency participate in a coalition? -Nutrition	31	22
112. In which of the following areas does your agency participate in a coalition?-Physical activity	34	19
112. In which of the following areas does your agency participate in a coalition?-Tobacco	37	16
113. Did your agency participate in any emergency preparedness activities in the last year?	51	2

APPENDIX C

EMERSON'S PROPOSED PUBLIC HEALTH REGIONS WITH POPULATION

Region 1	Population	Region 2	Population	Region 3	Population
Clay	16507	Emmet	9769	Cerro Gordo	43017
Dickinson	17111	Humboldt	9555	Franklin	10295
Lyon	11745	Kossuth	15165	Hancock	10974
O'Brien	13984	Palo Alto	9133	Winnebago	10609
Osceola	6154	Pocahontas	7008	Worth	7569
Sioux	34937			Wright	12773
Total	100438	Total	50630	Total	95237

Region 4	Population	Region 5	Population	Region 6	Population
Bremer	24722	Allamakee	13886	Dubuque	97125
Butler	14915	Clayton	10832		
Chickasaw	12097	Fayette	20257		
Floyd	15960	Winneshiek	20709		
Howard	9410				
Mitchell	10832				
Total	87936	Total	65684	Total	97125

Region 7	Population	Region 8	Population	Region 9	Population
Benton	25658	Black Hawk	133455	Grundy	12435
Buchanan	21062			Hardin	17367
Delaware	17403			Marshall	40746
				Tama	17337
Total	64123	Total	133455	Total	87885

Region 10	Population	Region 11	Population	Region 12	Population
Calhoun	9818	Buena Vista	20493	Woodbury	102782
Greene	9027	Cherokee	11574		
Hamilton	15190	Ida	7028		
Webster	37071	Plymouth	24800		
		Sac	10021		
Total	71106	Total	73916	Total	102782

Region 13	Population	Region 14	Population	Region 15	Population
Audubon	5773	Boone	26,643	Polk	467,711
Carroll	20498	Dallas	80133		
Crawford	17094	Guthrie	10676		
Harrison	14265	Story	96021		
Monona	8979				
Shelby	11927				
Total	78536	Total	213473	Total	467,711

Region 16	Population	Region 17	Population	Region 18	Population
Jasper	36,827	Cedar	18340	Linn	219916
Mahaska	22324	Iowa	16401		
Marion	33,294	Johnson	144251		
Poweshiek	18550				
Total	110,995	Total	178992	Total	219916

Region19	Population	Region 20	Population	Region 21	Population
Clinton	47768	Scott	172126	Keokuk	10163
Jackson	19444			Louisa	11185
Jones	20466			Muscatine	43011
				Washington	22247
Total	87678	Total	172126	Total	86606

Region 22	Population	Region 23	Population	Region 24	Population
Des Moines	40055	Davis	8769	Appanoose	12529
Henry	19950	Jefferson	17555	Clarke	9259
Lee	35089	Monroe	7973	Decatur	8220
		Van Buren	7344	Lucas	8682
		Wapello	35173	Warren	48626
				Wayne	6385
Total	95094	Total	76814	Total	93701

Region 25	Population	Region 26	Population	Region 27	Population
Adair	7228	Pottawattamie	93671	Fremont	6906
Adams	3796			Mills	14844
Cass	13427			Montgomery	10234
Madison	15753			Page	15527
Ringgold	5068			Taylor	6205
Union	12469				
Total	57741	Total	93671	Total	53716